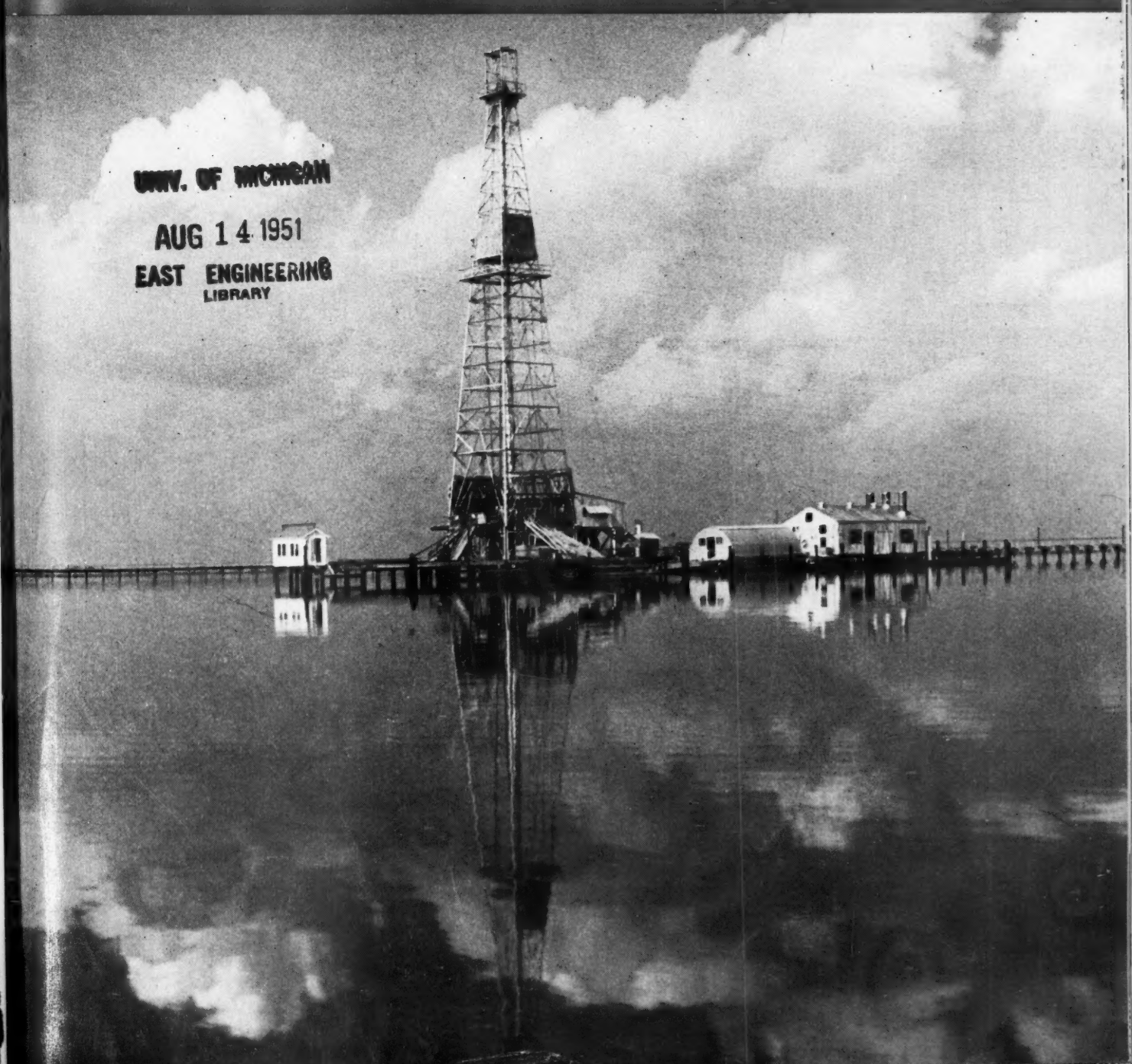
AUGUST
1951

fueloil & oil heat



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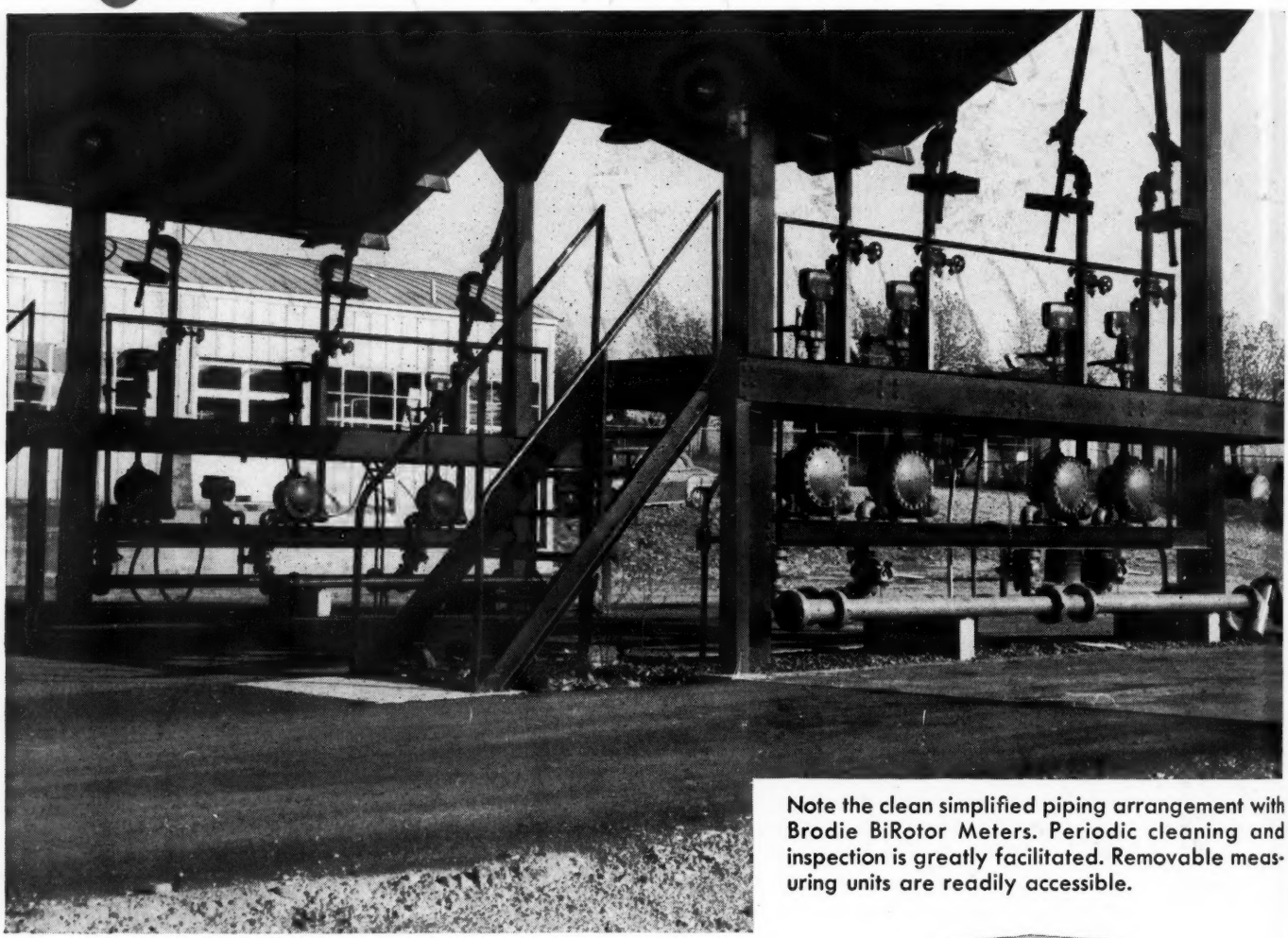
Clean RACKS AND RECORDS



Note the clean simplified piping arrangement with Brodie BiRotor Meters. Periodic cleaning and inspection is greatly facilitated. Removable measuring units are readily accessible.

—with BRODIE BiRotor METERS

The *compactness and accessibility* of Brodie BiRotor Meters contribute to clean simplified loading rack design and construction—for fast efficient operations.

Complete interchangeability of self-contained BiRotor Measuring units permits quick, easy inspection and periodic cleaning—without disturbing existing line connections.

Welded all-steel housing greatly increases resistance to damage from shocks, impacts or vibrational strains.

High sustained accuracy over long periods of constant use provides consistently accurate gallonage records to control stock losses. Brodie BiRotor Meters meet exacting engineering and operating requirements. Investigate today. Write for full details.

BRODIE ALL-STEEL BiRotor TRUE-ROTARY **METERS**

RALPH N. BRODIE CO., INC. • 61st & LOWELL STREETS, OAKLAND 8, CALIFORNIA, U.S.A.

Division Offices: 550 SO. COLUMBUS AVE., MT. VERNON, N.Y. • 59 E. VAN BUREN, CHICAGO 5, ILL. • 302 SO. PEARL STREET, DALLAS, TEXAS
221 9th AVE., N. SEATTLE 9, WASH. • 2101 S. SAN PEDRO, LOS ANGELES 11, CALIF. • *REPRESENTATIVES AND STOCKS IN ALL PRINCIPAL CITIES*

AUGUST fueloil & oilheat 1951

VOLUME 10 NUMBER 8

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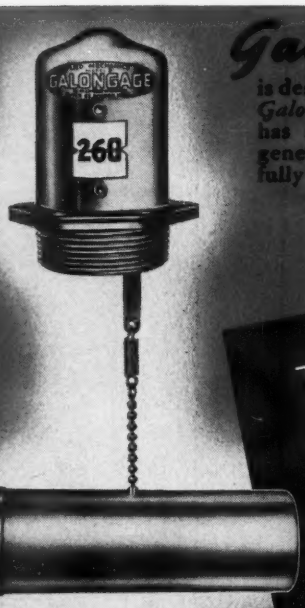
Among other things . . .

There were quite a number of favorable opinions about the new Commercial-Industrial section that started last month, only one unfavorable but it was a honey. In a page and a half, single spaced, he took each writer apart in small pieces. This man has been asked to write his views for an early issue. Differences of opinion are healthy in a new section like this . . . let's have them.

The simplest degree-day system we have ever seen is described in the lead article of the main section. After two seasons' experience, results show it's good.

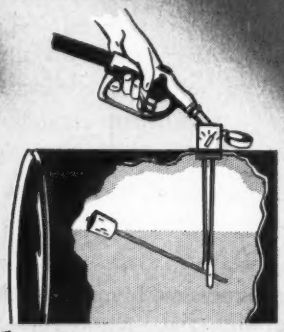
Webster Electric's Dealer Service Plan and Boston Machine's Modernization Program get feature attention this month, as each holds dealer meetings throughout the country. A lot of fine thinking went into these projects. And again, John Schulz threatens to cure pursation, per se.



Galongage Outstanding in the field, it is designed to meet the most exacting requirements. *Galongage* does credit to the finest installation and has strongest consumer appeal. The only gauge generally used that measures in gallons. Comes fully assembled... quick and easy to install.

Reliable Accurate Easy to Install

International In the lower priced field, also for 275-gallon tanks. Best of lever arm type gauges. Built oil-tight at the factory with flexible float-arm, it is ready for immediate installation. Extra large, easy-to-read numbers on aluminum dial calibrated in eighths.



Fil-thru For 55-gallon oil drums. Gauge, vent and fill-pipe all in one. Installed without tools of any sort. With FIL-THRU user knows at a glance when to order and fill man can tell how much is required. Rugged, rainproof and non-corrosive. Clean and convenient for consumer and oil man.

A WINNING TEAM THAT TOPS THEM ALL

Whether it's for the finest installation or a 55-gallon drum, we have the fuel oil gauge to do the job *better*. Here's a *team* designed to give you customer satisfaction and top performance with economy and efficiency. Write for complete details.

APPLIED MECHANICS COMPANY
167 OLIVER STREET, BOSTON 10, MASSACHUSETTS

Names in the News

Robert W. Engbring was recently named as advertising manager of the Perfex Corp., Milwaukee, Wis. He will be in charge of all advertising and promotion work for the Temperature Control, Radiator, and Process Color Divisions. Previous to his present association Mr. Engbring served as advertising and sales promotion manager with the K. O. Lee Co. of South Dakota.

William W. Stevens has been announced as the new eastern district sales representative for Century Engineering Corp., Cedar Rapids, Ia. His territory will include the New England states, eastern New York and New Jersey. Mr. Stevens has had a number of years experience in the heating business at the wholesale and retail level and has been associated with Rheem Mfg. Co., and eastern sales manager for Lawson Mfg. Co.

John W. James was recently elected vice-president in charge of sales for McDonnell & Miller, Inc., Chicago, Ill. Mr. James joined this organization in 1948, having served previously as technical secretary of the A.S.V.H.E., and worked as a consulting engineer.

J. C. Hemingway has retired from the H. C. Little Co., San Rafael. Calif., after an association of more than 22 years with the company. He

fluid heat

Triple-Threat Profit-Maker!

SELL THE LINE THAT GIVES YOU THESE 3 BIG SALES ADVANTAGES

1 You're backed by an old, established manufacturer!

For over 29 years, Fluid Heat has been famous for top-notch oil heating equipment. Many of the industry's "firsts" have come from Fluid Heat's engineering laboratories . . . many of these developments have remained Fluid Heat exclusives, giving you superior units to sell! With more research going on continually, Fluid Heat stands behind every unit manufactured—you can sell Fluid Heat with confidence!

2 You make more Sales with a Big, Complete Line!

Famous Fluid Heat Pressure Burners. Four models, with firing rates from 7/10 to 12 gallons per hour.

Famous Fluid Heat Wall Flame Rotary Burner. Two models with firing rates from ½ to 4½ gallons per hour.

Famous Fluid Heat Boiler Burner Units. Six models, rated from 300 to 1090 sq. ft. of standing steam.

Famous Fluid Heat Winter Air Conditioning Furnaces. Seven models, from 70,000 to 200,000 B.T.U. per hour.

3 Your Customers are pre-sold by Fluid Heat Advertising!

Your customers learn about Fluid Heat's better *features* . . . about Fluid Heat's better *dealers* . . . from advertisements appearing in *Better Homes & Gardens* and *The American Home*. Builds consumer confidence in *you* as a dealer . . . makes it easier for you to sell!

Plus *these features:*

Fluid Heat is easy to install, seldom needs servicing. A screwdriver accurately sets the adjustment on the exclusive air-regulating "Fuel Saver" control. Non-coking stainless steel nozzles and heavy-duty motors add up to long, trouble-free performance for you and your customers. *You* can make more money with *Fluid Heat*—mail coupon today for details.

fluid heat
AUTOMATIC HEATING

MAIL COUPON NOW *for full information!*

FLUID HEAT DIV., ANCHOR POST PRODUCTS, INC.
6700 Eastern Ave., Baltimore 24, Md.
Please send me details on a Fluid Heat Dealership.

Name .....
Firm .....
Address .....
City ..... Zone ..... State .....

fuelfoil oilheat

has been succeeded as sales manager by *Donald Sutherland,* who has been the distributor for many years for the company's equipment in Seattle, covering the State of Washington. Mr. Hemingway has been vice president, national distributor and, most recently, sales manager of the company. He was employed by the Ray O. B. Co., San Francisco, Calif., before joining the H. C. Little Co.

Wm. C. McCall has accepted an appointment from the Office of Price Stabilization to serve as northwest representative on the West Coast Petroleum Wholesale Industry Advisory Committee. Meetings of the committee are to be held in Los Angeles. Mr. McCall is President of The McCall Oil Companies of Washington & Oregon, and a co-owner of one of the largest propane gas distribution agencies in the northwest, Gas Heat, Inc. of Oregon & Washington. His experience with the distribution of gasoline and heating oils coupled with his knowledge of propane gas in both domestic and industrial applications provides a wide working knowledge which should be of great assistance to the committee.

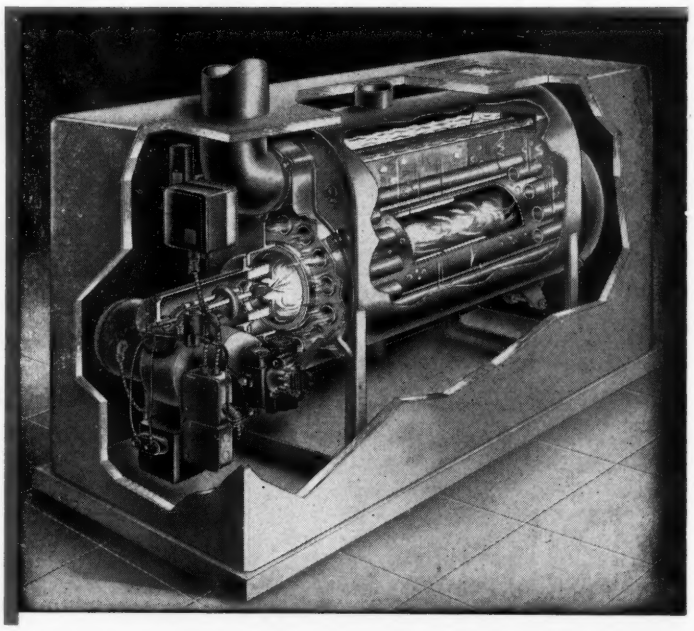
Charles T. Erdman has been appointed to the position of a field service engineer by the Fluid Heat Div., Anchor Post Prods., Inc., Baltimore, Md., Mr. Erdman formerly associated with the Arrow Oil Co., and Sherwood Bros., Inc., both of Baltimore.

B. J. Greenough has retired from the Perfection Stove Co. for reasons of health. He has been succeeded by *H. C. Erdhard,* who has been associated with the company's Range & Heater Division in Cleveland since 1949. Mr. Greenough has managed the company's Jersey City, N. J. sales district for the past seven years, and has been associated with the company for 38½ years. In 1931 he came to New York City to head the company's district sales office here, returned to Cleveland in 1942 to become chief expediter, and moved to Jersey City in 1944.

Charles L. Cronin, Cambridge, Mass., an old timer in the oilburner business in which he had been engaged for the past 20 years, died on June 5. For a number of years before he went into the supply business for himself at Arlington, Mass., he headed the Cronin Supply Co. at Cambridge, Mass. Mr. Cronin was the first president of the Massachusetts Oil Heating Association and for many years maintained close contact with the Fire Chief's Club of Massachusetts. Through this contact he was able to bring about a closer understanding between Fire Departments in the state and the oilheating industry. Mrs. Charles Cronin, his widow, has announced her intention of continuing her late husband's business, carrying on the business policies and standards he had established.

THE *C-liminator*
IS STANDARD EQUIPMENT
ON THE
Bethlehem Crusade-a-therm

The C-liminator, an electrical delay switch that forever eliminates smoke on start, plus the electrical solenoid valve, which eliminates smoky shut downs and after-dripping, causing fumes and vapors, are standard equipment on the Bethlehem Crusade-a-therm. In fact, it's the only package unit in the world that has the C-liminator . . . designed by Bethlehem engineers and used on the Bethlehem Crusade-a-therm since April, 1950. It was tested and proved in the field one year prior to its introduction.



The Bethlehem Crusade-a-therm is the last word in home heating comfort and convenience! It's a compact, highly efficient, completely automatic package unit. From it you get quiet, clean heat and an ample, year-round supply of domestic hot water. Designed to give lifetime service at a low, low cost!

The Bethlehem
Crusade-a-therm

BETHLEHEM FOUNDRY & MACHINE COMPANY
BETHLEHEM, PENNSYLVANIA

A few exclusive Bethlehem Crusade-a-therm territory Franchises are still available. Wire or write immediately for full information.

It's

STEINEN

for

Nozzles

GUARANTEED — STEINEN — ACCURACY

Nozzles - Adapters - Nozzle Kits
Inspection Mirrors - Air Bands

WM. STEINEN MFG. CO.

Manufacturers for over 40 Years of
Screw Machine Products Assemblies
Metal Stampings

43 BRUEN STREET — NEWARK, N. J.

Editorial Leaks

ON THE COVER last month we ran a picture of a man demonstrating a commercial oilburner to a couple of interested observers. We mentioned that we did not know who they were. From various sections of the country we've been told. The man making the demonstration was Ray Plass, chief engineer of Ray Oil Burner Co., San Francisco, and the two "prospects" in the picture were Arnold and Richard Jones, who operate under the firm name of Everybody's Oil Corp., Anderson, Indiana. We hope that by now they are selling a lot of Ray burners.

❖

DISSATISFACTION OVER what they consider mistreatment by primary fueloil suppliers has grown among fueloil distributors this summer. This may all be a temporary situation generated by fear of not getting enough fuel to care for customers this coming season. In that event it may blow over when the supply proves to be ample, as we believe it will.

The National Oil Jobbers' Council, meeting in Atlantic City at mid-July spent three days on the subject.

Much of the feeling is over split-account policies, where major suppliers have cancelled out distributors who do not get all of their oil from the one source. This is naturally a great inconvenience to the distributor, but there is nothing illegal about it. The Clayton Act gives everyone the right to refuse to sell any product to anyone at any time, and without reason.

Even if a supplier cancels a distributor and then sets up direct retail marketing in the community, there is nothing illegal or even unethical about it. It is a plain business choice.

The other cause for anxiety and annoyance among fueloil distributors this summer is the age-old problem of margins, which many think are too low in the face of rising costs. In some sections of the country we agree with this position; the Midwest is low compared with the rest of the country.

But again, this is a simple business decision. If the suppliers couldn't get the fueloil handled at present margins they would either raise them from necessity or take over direct selling on a broader scale.

However irritating or frustrating these policy decisions may seem, they are admittedly legal and in a business sense they are ethical.

The only question then is, "Are they good industry relations?" Washington is asking, "Are they good practical politics?" which is even more important, things being as they are. The volume of complaints to the Congress and to the Petroleum Administration is growing. Some high Government figures are quietly saying that something must be done, and soon. Good politics demands special attention to "small business" . . . there are so many more small business men than large ones, so many more votes at stake.

The big oil industry, clearly within its legal rights in everything it is doing along those lines this year, will soon awaken to these Washington rumblings. They are real, and there is danger of trading a season of marketing expediency for a long time allocation straitjacket.

❖

ONE OF THE STRANGE aspects about Washington's Controlled Materials Plan and its effect on the oilheating industry is that it appears to have had almost no effect at all. When the allocations for basic materials needed in the third quarter were mailed out to the oilburner manufacturers, some of them were cut so sharply that the only thing to expect was loud objections and appeals for relief.

The appeals didn't show up, with one or two exceptions. Apparently factory and dealer stocks of finished products were high enough that not much concern was felt over raw materials through the rest of the summer.

The CMP job is an enormous one for the Government agencies doing the work. In fact, it's so big that no one in Washington expects to have it working smoothly before the first of the year. They are doing fine work, but it will take that long to iron out the kinks and get reasonable equity between industries.

Meanwhile there are soft spots where such things as seasonal factors couldn't be considered properly in the first rush to get the plan under way. Oilheating is one of those, oilheating and a few hundred other products.

How are the Government agencies going to know which industries are worst hurt . . . which need study and correction in the early months? Only by the volume of squawks. If your allocations as a manufacturer are so low as to prevent your making shipments up to 75 or 80% of your output last year, you are being asked to do more than your share to help the Defense Program. Of course, you must take into account your inventories or an appeal will lose much of its weight.

The point is that you should not hold back just to be gentlemanly in this instance. The squeaking wheels will get the grease. Government expects and wants it to be that way. Under the directive establishing the agency, NPA is not allowed to put anyone out of business. The men working in the agency don't want to take chances on running afoul of that point. If you're badly hurt, holler!

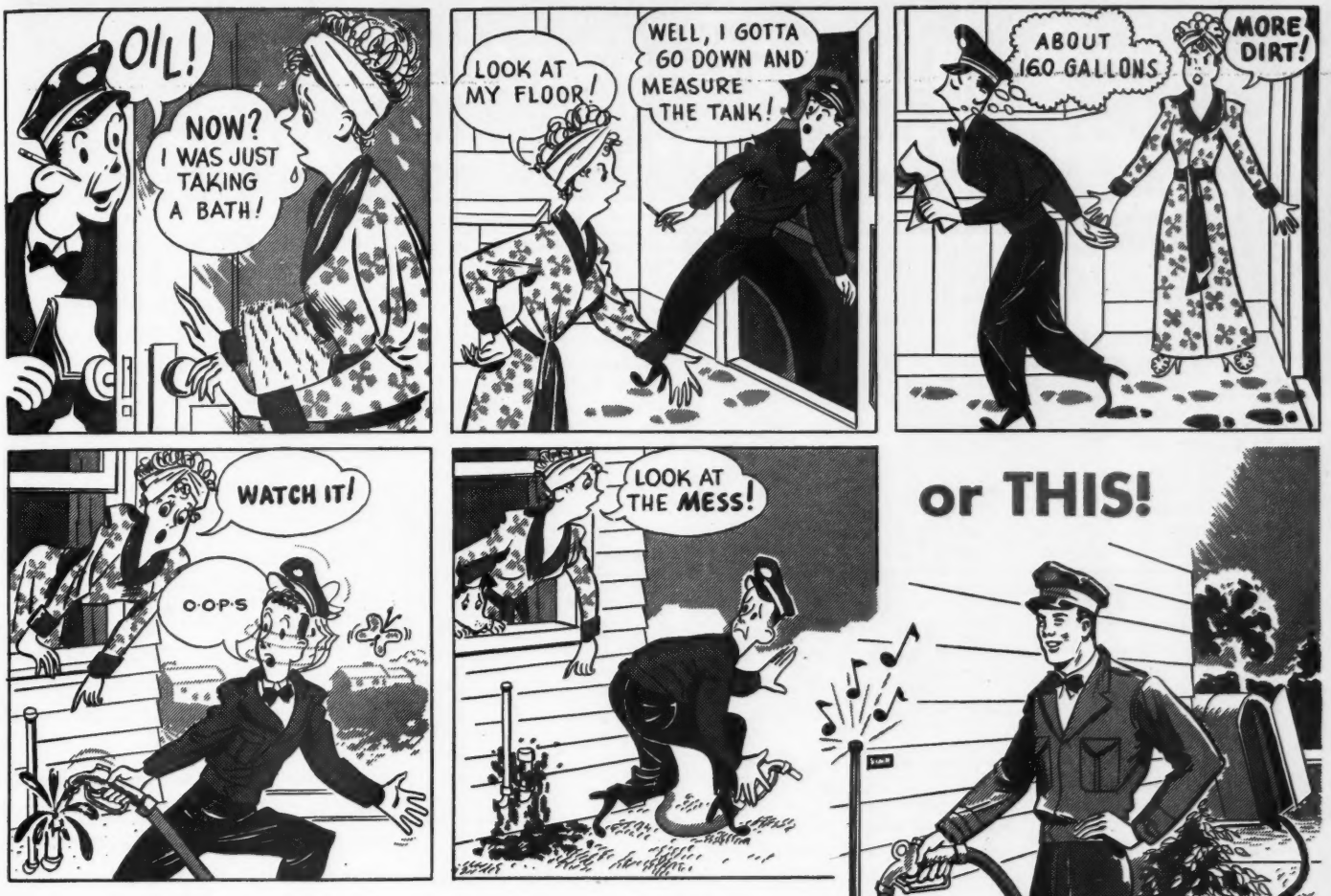
❖

AT THE OHI Directors' Meeting in Portsmouth, New Hampshire, in July, Institute president Al Crawford used the word "euphemistic." Back home, looking it up, the Concise Oxford Dictionary defines it as "the substitution of a mild or vague expression for a harsh or blunt one."

The subject being discussed when he used the word escaped us, but we can see why a trade association president should be familiar with it.

After years of fighting competitors vigorously and effectively he now finds himself in a position of having to like them. While an institute head may believe that a competitor is a blackguard and even of questionable birth, euphemism dictates that he can't be called worse than an "unusual sort."

Do Your Customers Like THIS Service . . . ?



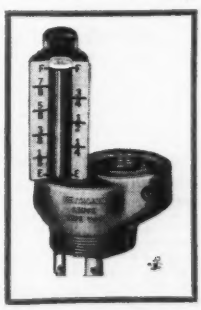
or THIS!

NOW is the time for you to SATISFY OLD CUSTOMERS SIGN UP NEW CUSTOMERS with VENTALARM® *WHISTLING* TANK FILL SIGNAL

Of course the cartoons are overdrawn but . . . 15 Major and 4,000 Independent Oil Companies will tell you that VENTALARM Signal makes a BIG CHANGE in the oil delivery picture. They know, because they're satisfied users. No magic formula; just common sense. When one inexpensive item such as VENTALARM Signal can increase customer satisfaction so much and take such a big slice out of delivery costs through time saving . . . it calls for careful consideration and action right now among non-users. You can make money for your company during the coming Heating Season by deciding now to equip the tanks of your fuel customers with VENTALARM Signal.

Models for new and old tanks available at your local Supply House.

NO NEED TO BOTHER THE CUSTOMER OR ENTER THE HOME · POSITIVE FILLING WITHOUT SPILLING



Remember the new unit combining VENTALARM Signal with a Tank Gauge. For new burner installations. Order from your jobber.

SCULLY SIGNAL CO.

76 First Street, Cambridge 41, Mass.

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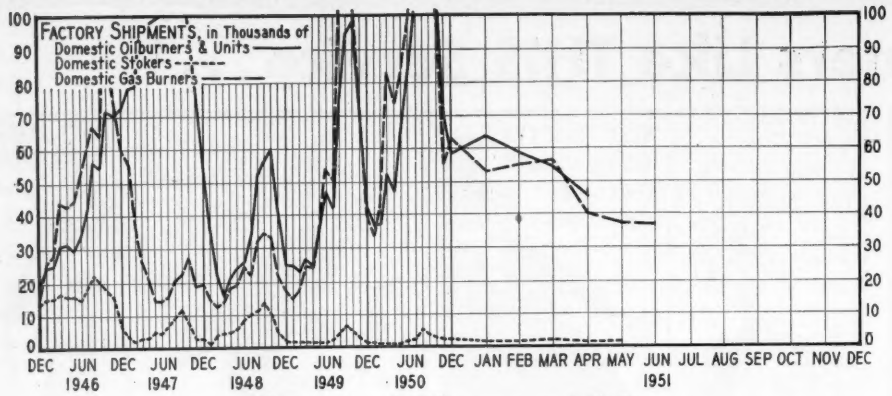
VENTALARM®

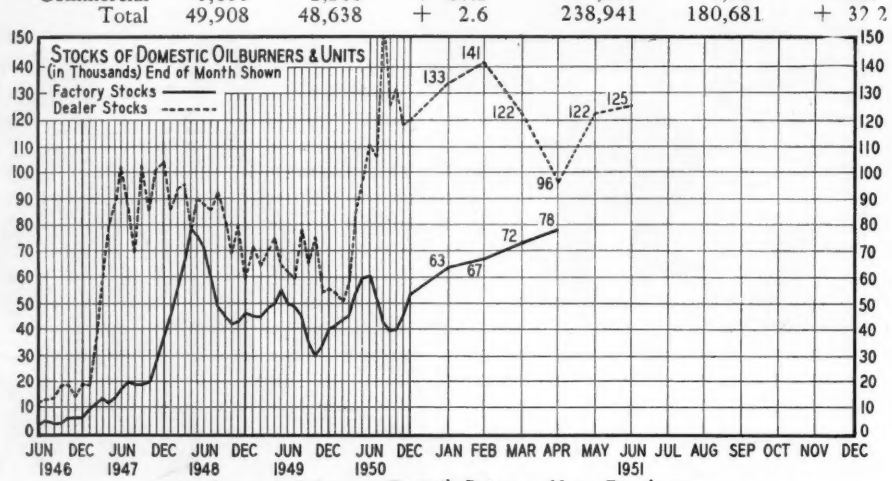
WHISTLING TANK FILL SIGNAL


FACTORY SHIPMENTS, in Thousands of
Domestic Oilburners & Units
Domestic Stokers
Domestic Gas Burners
DEC JUN DEC JUN DEC JUN DEC JUN DEC JUN DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1946 1947 1948 1949 1950 1951

Shipments of Oilburners and Units
(Including Exports)

Adjusted to include manufacturers other than the 151 reporting to Census Bureau, FUELOIL & OIL HEAT's estimates of shipments are:

	APRIL			FOUR MONTHS		
	1951	*1950*	*Percent Change*	*1951*	*1950*	*Percent Change*
Conversion	32,171	34,982	— 8.0	155,715	126,873	+ 22.7
Boiler Units	4,694	4,336	+ 8.3	22,388	15,465	+ 44.8
Furnace Units	9,410	7,052	+ 33.4	45,623	29,960	+ 52.3
All Domestic	46,275	46,370	— 0.2	223,726	172,298	+ 29.8
Commercial	3,633	2,268	+ 60.2	15,215	8,383	+ 81.5
Total	49,908	48,638	+ 2.6	238,941	180,681	+ 32.2

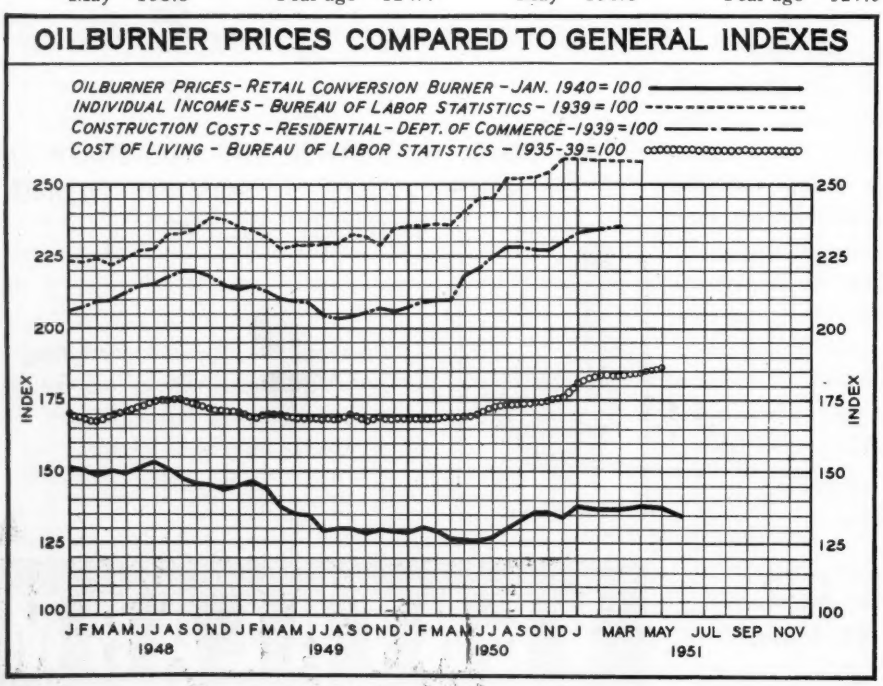


June Minimum Retail Prices: Key Dealers

	CONVERSION BURNERS	BOILER-BURNERS	FURNACE-BURNERS
June Aver.	$333	$688	$625
May Aver.	332	680	620

Price Index: Conversion Burners: January 1940 is 100%

WHOLESALE				RETAIL			
June	137.6	Six months ago	137.9	June	135.4	Six months ago	135.3
May	138.8	Year ago	124.4	May	136.6	Year ago	125.3


OILBURNER PRICES COMPARED TO GENERAL INDEXES
OILBURNER PRICES - RETAIL CONVERSION BURNER - JAN. 1940 = 100
INDIVIDUAL INCOMES - BUREAU OF LABOR STATISTICS - 1939 = 100
CONSTRUCTION COSTS - RESIDENTIAL - DEPT. OF COMMERCE - 1939 = 100
COST OF LIVING - BUREAU OF LABOR STATISTICS - 1935-39 = 100
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1948 1949 1950 1951

Oilheating Trends

INSTALLATIONS OF DOMESTIC oilburners and units during June are estimated at 43,625, the fourth consecutive month to show a decline from the previous year. In June last year installations were 66,855 so the drop during this June was 36%.

Total installations for the first half of this year were 231,006, showing a drop of 15% from the 271,778 installed in the first half of 1950.

The June installations were divided: New homes 7,832; Replacements of old oilburners 5,184; Conversions from other fuels 30,609.

It is hard to know whether the declining installation rate of the past four months will carry on into the Fall. Most manufacturers and dealers believe not. They pretty well know the reasons for the Spring slump and believe that some of these retarding factors will be moderated in the summer. Last year installations in the first six months were 33.1% of the full year. On the old industry pattern based on the experience of several years the first half of the year represented 33.5% of the full year. Certainly 1951 is in no sense a normal year, but if it should follow the typical seasonal pattern the total installations for the year will be around 700,000.

BURNER STOCKS: Stocks of domestic oilburners and units in dealer inventories at the end of June were approximately 125,339. This compares with 122,087 the previous month and with 111,147 at the end of June 1950.

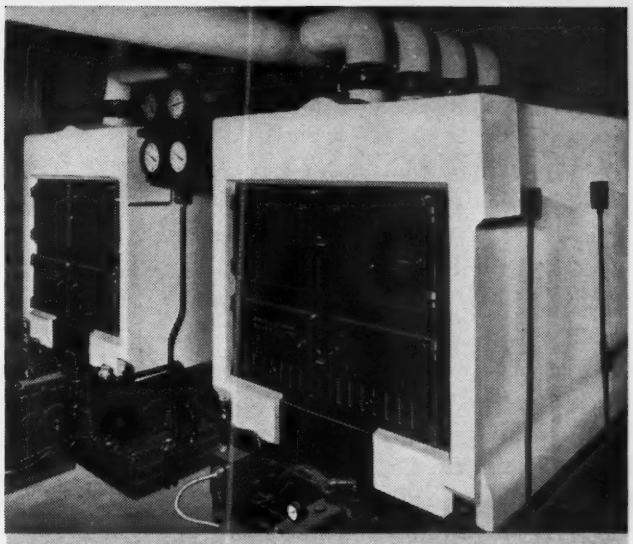
Factory stocks on April 30, the latest available figures, were 78,002, compared with 53,172 on the same date in 1950. In fact, they were at the highest point reached since the end of the war and were probably at the highest point in the industry's history, although no such stock records were kept before the war.

TANK STOCKS: Dealers had on hand July 1 approximately 164,233 fueloil tanks for consumer installations. A year ago they had 87,214. The present tank stocks are the highest in the industry's history and they reflect not only very adequate supply but also a feeling that they will be harder to get later in the season. The July 1 tank

AMERICAN-Standard

First in heating...first in plumbing

Sixth and Denny Branch of Seattle-First National Bank. Architect: John W. Maloney, A.I.A.; Mechanical Engineer: DeWitt C. Griffin & Associates; Mechanical Contractor: Rautman Plumbing & Heating Co.; General Contractor: General Construction Co. All are Seattle firms.



A battery of two or more Redflash Boilers provides a heating plant of extreme flexibility. In cold weather the entire battery will team up to take care of the load. On mild days the fluctuating demand for heat can be efficiently handled by one of the boilers, thus effecting desirable economies in fuel.

Seattle's Most Modern Bank installs Redflash Boilers

Newest branch is fifth in large state-wide system to be heated by AMERICAN-Standard equipment

● One of the nation's fastest growing banks is the Seattle-First National. And it is one of the most progressive. Operating a state-wide system of branch offices, this great institution now ranks 24th in deposits among all banks of the country.

The attractive building shown above is the fiftieth and newest branch to be opened. Known as the Sixth and Denny Branch and located in the heart of Seattle's northern downtown business district, this modern banking building incorporates many unique banking facilities, including drive-in banking and a large parking area.

Another feature which reflects this important bank's sincere interest in the health and comfort of its customers . . . and its own personnel, is the installation of two American-Standard Redflash Boilers to insure dependable and efficient heat and operating economy. Redflash Boilers have also been installed in four other recently opened branches.

Redflash boilers provide economical heating for your commercial jobs!

Expertly engineered and sturdily constructed, the Redflash Boiler can be installed singly or in battery to provide an abundance of heat for large residences or commercial buildings of practically any size. Its scientifically proportioned combustion chamber, direct heating surface, and long flue travel for hot gases assure highest heat output with the least fuel. For detailed information about the Redflash Boiler and other large size oil fired heating units in the American-Standard line, contact your wholesale distributor.

Easy to Install...

Redflash Boilers are shipped in sections, so that even the largest size is easily moved through a door or elevator hatch. Can be assembled quickly without tearing down walls or shifting heavy equipment.

American Radiator & Standard Sanitary Corporation, P. O. Box 1226, Pittsburgh 30, Pa.

Serving home and industry

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stocks were divided: 153,053 of sizes 220-275 gallons; 7,723 in sizes 550-675 gallons; 3,457 tanks with capacity 1,000 gallons or larger.

The average price level during June was $42 for a 275 gallon tank, the same as during May. However, while this is a decline from a high point of $46 reached last winter it is still 50% above the $28 average in June 1950. By sections of the country the June average this year was: New England $40; Mid-Atlantic $44; Midwest $39; Pacific Northwest $45.

GAS COMPETITION: Because of the probability that there will be a Government restriction or limitation on gas heating installations East of the Mississippi, the dealers were asked a number of questions this month to determine how that might affect oilheating. First they were asked how they believe the gas installations this year will compare with last year in their markets, assuming there were no restrictions. On that basis New England dealers expect gas installations to be up 11%; Mid-Atlantic dealers expect them up 6%; Midwest dealers expect them down 14%; Pacific Northwest dealers expect them up 1%. The average for the country as a whole shows an anticipated rise in gas heating installations of 2% over last year, if there were no restrictions.

The dealers were then asked if the local gas companies are now actively advertising and soliciting heating accounts. The answers indicate that just about half of the utilities in the oilheating areas of the country are actively seeking gas heating customers and the other half are not. The actual figures were 49% and 51% respectively.

The next question on this subject inquired what percent of the new homes being built this year would go to gas heating, if there are no restrictions. The estimates by the dealers show: New England 30%; Mid-Atlantic 51%; Midwest 71%; Pacific Northwest 7%; Total U. S. 47%.

Then the dealers were asked what, in their opinion, would happen to the new home heating business if gas installations were prohibited in their individual markets. They believe that in that event 92% of the new homes would go to oil and 8% to coal. By sections of the country these percentages were: New England 95 and 5; Mid-Atlantic 92 and 8; Midwest 87 and 13; Pacific Northwest 97 and 3.

The final question in this gas competition series asked how much the dealers believe oilburner sales would rise if gas heating installations were completely prohibited in their markets. The composite opinion was 29%. By sections the estimates were New England 15%; Mid-Atlantic 30%; Midwest 49%; Pacific Northwest 7%.

(*Please turn to page* 158)

Oilburner* and Building Permits

OILBURNERS					DWELLINGS			
June		6 MONTHS			*June*		6 MONTHS	
1951	*1950*	*1951*	*1950*		*1951*	*1950*	*1951*	*1950*
55	81	338	352	Albany, N. Y.	..	..	..	..
243	543	1477	2285	Baltimore, Md.	394	481	2669	3173
..	..	..	..	Binghamton, N. Y.	13	26	50	68
..	..	..	..	Bloomfield, N. J.	23	22	53	72
..	..	..	..	Boston, Mass.	30	22	146	165
74	106	442	435	Bridgeport, Conn.	..	..	..	..
..	..	..	..	Buffalo, N. Y.	38	85	289	396
7	0	20	10	Columbus, O.	..	..	..	..
..	..	..	..	Des Moines, Ia.	89	150	468	862
446	70	1683	527	Detroit, Mich.	571	1182	4021	7924
56	79	241	291	Elizabeth, N. J.	2	6	31	34
36	53	223	228	Freeport, N. Y.	..	..	..	..
..	..	..	..	Greenwich, Conn.	31	34	234	188
..	..	..	..	Hackensack, N. J.	..	5	..	95
86	137	981	788	Hartford, Conn.	..	..	..	..
..	..	..	..	Hudson County, N. J.	..	..	..	..
47	69	198	265	Irvington, N. J.	1	3	24	29
..	..	..	..	Lynn, Mass.	12	23	60	90
12	37	177	387	Meriden, Conn.	..	..	..	..
70	267	420	1322	Milwaukee, Wisc.	266	378	1426	1745
55	81	315	365	Minneapolis, Minn.	128	289	738	1067
24	29	118	134	Montclair, N. J.	..	..	..	..
..	..	..	..	Morristown, N. J.	1	4	7	19
38	66	133	226	Mt. Vernon, N. Y.	..	..	..	..
193	306	805	976	Newark, N. J.	..	..	..	..
30	42	325	530	New Bedford, Mass.	..	..	..	..
46	68	255	225	New Haven, Conn.	..	..	..	..
..	..	..	..	New Orleans, La.	..	..	..	..
26	39	247	152	New Rochelle, N. Y.	18	13	75	103
2352	3525	12330	13981	New York City (total)	..	..	..	..
1824	2906	9383	10880	Brooklyn-Queens	..	..	..	..
528	619	2947	3101	Manhattan, Bronx, Rchd	..	..	..	..
122	88	919	474	Norfolk, Va.	58	99	439	710
..	..	..	..	Oakland, Calif.	..	..	..	..
80	57	537	292	Omaha, Neb.	..	197	..	819
29	26	106	107	Orange, N. J.	6	4	33	12
27	49	109	183	Passaic, N. J.	..	..	..	..
76	136	300	497	Paterson, N. J.	35	34	114	114
624	1266	3614	4518	Philadelphia, Pa.	..	..	..	..
..	..	..	..	Plainfield, N. J.	12	23	92	86
61	58	289	225	Portland, Me.	18	30	97	91
363	607	1949	2139	Portland, Ore.	148	281	881	1235
24	16	85	74	Poughkeepsie, N. Y.	..	..	..	..
77	1	384	271	Providence, R. I.	26	26	134	160
..	..	..	..	Reading, Pa.	15	14	55	52
63	78	425	479	Richmond, Va.	41	80	385	411
59	116	256	634	Roanoke, Va.	..	..	..	..
207	408	1047	1411	Rochester, N. Y.	..	..	..	..
..	32	..	146	Rockville Center, N. Y.	..	11	..	90
25	33	147	173	Salem, Mass.	8	12	42	53
169	10	617	214	St. Louis, Mo.	59	98	317	554
31	145	329	584	St. Paul, Minn.	103	200	562	860
54	66	387	372	Schenectady, N. Y.	..	..	..	..
..	..	..	..	Seattle, Wash.	167	272	1102	1440
..	..	..	..	Springfield, Mass.	114	101	396	386
19	99	333	512	Stamford, Conn.	..	..	..	..
..	10	..	79	Syracuse, N. Y.	48	80	146	358
..	..	..	..	Trenton, N. J.	1	6	26	43
..	..	..	..	Utica, N. Y.	9	15	77	73
51	72	417	740	Washington, D. C.	..	..	..	..
..	..	..	..	West Orange, N. J.	41	49	147	188
31	35	155	140	White Plains, N. Y.	3	28	55	70
96	63	433	381	Wilmington, Del.	34	11	162	161
157	207	775	867	Worcester, Mass.	..	..	..	..
78	125	334	374	Yonkers, N. Y.	..	..	..	..
6412	9359	34675	39140	*Totals*	2563	4181	15553	22992
—31.4		—11.4		*Percent Change*	—38.6		—32.3	

*Permits are not total sales in each market since none are reported from suburban areas, which normally account for 20% to 60% of total sales in each market; nor are they an accurate index where enforcement is lax. Rightly used, however, they are a useful working index.

Oil Burner Primary Controls

Newly designed primary oil burner control for gun or rotary type oil burners. Available for intermittent or constant operation. Design includes some new features such as improved slip-friction clutch, which makes for trouble-free service.

One of many in the comprehensive line of White-Rodgers automatic controls for residential heating. *Send for catalog today.*

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Government Influences on Fuels

by
Milburn Petty

WASHINGTON—Officials of the Petroleum Administration for Defense now say—without any IFs, ANDs or BUTs—that oil rationing won't be necessary **next winter.**

Heavy fueloil supplies may be tight if the Iranian situation does not clear up and the output from the Abadan refinery is not available to the friendly nations. But PAD believes that not even this would require rationing here.

Beyond next spring, however, rising demands may exceed capacity if oil expansion is held back by the lack of materials.

Seek More Steel for Oil Now

Carrying his fight to Capitol Hill, seeking more steel for petroleum, Secretary Chapman predicted that oil rationing might be necessary in eight or ten months if the needed materials are not made available now.

"It takes time to develop an oil field or build a refinery, even after you get the steel," Chapman pointed out.

Senators Join in the Fight

Senate Interior Committee was incensed when it learned that the Defense Production Administration had cut the steel allocation for petroleum to 67% of its third quarter requirements while other less essential industries got more steel than they had used in the 1950 base period.

So, the senators have taken up the cudgel to get more steel. Indications are that their efforts will be fruitful.

ODM Chief OK's Oil Expansion

Asking why the DPA officials were not cooperating with their "boss," Mobilization Czar Wilson, the senators pointed to Wilson's recent quarterly report endorsing the program to expand U. S. oil capacity by a million barrels daily.

Wilson said the "urgency" of this program was underlined by the troubled situation in the Middle East. Why then, the senators asked, doesn't DPA allot the steel needed for this "urgent" program?

DPA officials tried to duck this one by saying there wasn't enough steel to go around among all the "essential" industries.

"But none is more important than petroleum," O'Mahoney commented.

Line pipe is urgently needed to get crude supplies to new refining capacity being built.

Restrictions on Gas Planned

It is a physical impossibility to make enough line pipe—even if the steel were made available—in time to complete all of the gas transmission lines needed to supply the demands for next winter.

So, some kind of limitations on new installations still appear inevitable, as pointed out here last month. It may be by joint action of PAD and state utilities commissions.

Limited to Gas Shortage Areas

PAD first proposed a nationwide ban on serving natural gas to new space heater installations with exemptions promised for areas where distributors could show ample supplies.

Since then PAD has had to pull in its horns more and more. For awhile, it appeared that PAD might bow out in favor of the state commissions.

But it seems certain that some sort of gas restrictions will be applied in actual shortage areas of the East, Mid-West and Southeast.

Cutback on Gas Furnaces Seen

One likely result, if the gas ban is put into effect, is that DPA will make less steel available for gas furnaces. But, said one official, this would be offset by requests for more steel to make oilburners and coal stokers. "After all," he added, "people have got to keep warm."

Gas Appliance Makers Protest

Already, many home-builders have cancelled their orders for gas-heating equipment, according to manufacturers of gas appliances and other groups. They attributed these cancellations to PAD's announcement of the proposed ban which mentioned impending gas shortages in many areas.

A vigorous campaign has been waged by the gas-heat groups, carrying the fight to Secretary Chapman and to Capitol Hill. They argued that PAD should act to provide more line pipe for gas so supplies can be increased to meet demands.

Coal Men Are Suspicious

Instead of cheering over the proposed ban on new gas facilities, the coal people are suspicious that PAD's announcement was a move "to pry loose more steel for the building of gas pipelines."

"The truth is that the sins of the gas industry are catching up with them," said the National Coal Association. "They have oversold. This very fine fuel (gas) should not be wasted under boilers."

"End Use" Controls Feared

Among oil industry leaders, particularly those interested in both gas and oil, there were some who feared that PAD's proposed order might lead to "end use" controls on oil and gas, permanently. Instead, one suggested restrictions on steel for gas equipment; he also said the "too low" price was a factor. Let gas seek its own price level in competition with other fuels.

Disclaims Gas Pricing Power

Meanwhile, the Federal Power Commission has decided that it has no control over prices charged by independent producers and gatherers in selling to the interstate pipelines. This was in the Phillips Petroleum Company Case.

Complaining mid-western consumers had sought to roll back prices Phillips was charging the gas lines serving their areas. They probably will appeal to the Supreme Court.

Help for Independents Asked

While stocks appear ample, some independents complain that they cannot line up supplies unless they shift to branded operations.

So, the National Oil Jobbers Council has asked Secretary Chapman to (1) set up district committees to handle hardship cases and (2) take appropriate steps to insure that independents share equitably in available supplies.

If PAD doesn't have power to allocate, NOJC wants to know so that it can take whatever other steps are necessary to accomplish this.

Painless degree-day Methods

Cross Coal Co., 87 years old, uses Imagination in Fueloil Distribution

by
Robert Gray

IT WAS BACK in March, 1944, that the Lawrence (Mass.) *Daily Eagle* ran a special section helping the Cross Coal Co. celebrate its 80th anniversary in the fuel business. Two or three paragraphs from that newspaper account will provide an interesting backdrop for later developments. . . .

"Eighty years ago Captain Jerome Cross lived on the Old Ferry Road in Pleasant Valley. This was a road that connected with Ward Hill and was used extensively by the old settlers in hauling supplies. Many a load of hay and cordwood was ferried across the river from Pleasant Valley to Ward Hill by an old windlass attached to a raft and propelled by a pair of horses. Round and round they would go from morning to night, and slow as it was, it was invariably used as a short cut instead of going along the old road by the river.

"The Cross Coal Co. had its beginning at that point. Captain Jerome Cross used to haul cordwood into Lawrence. His fuel business was interrupted for a short time as he was made captain of the first militia company that left Lawrence for the Civil War. In the early years following the war, Capt. Cross' days were spent in logging heavy timber from the northern woods down into the tributaries of the Merrimack River. The farmers for miles around used to gather at the head of the falls when the raft was coming through, for invariably Cross would cut off one of the big logs and standing alone he would ride this down through the rough water, a feat that he was quite proud of.

"In 1872, he bought out the local wood business of William Moore and, being of a progressive nature, instead of sawing the wood with a handsaw he had a treadmill that was operated for years by a white mare. A few persons can still remember stopping at the door to gaze at the mare, ceaselessly plodding on, and aware by the sound of the saw when she was nearing a knot, how she would dig in her toes to cut through it."

The present Jerome W. Cross heading the company is the great grandson of the old captain. In the intervening decades the company was headed by his grandfather, John Sargent Cross, and by his father, also Jerome W. Cross.

It was a little over a year ago that Cross explained to a New England fueloil group the outline of a new degree-day and dispatching system that had been developed and put into use by his company. He was enthusiastic about its possibilities, but thought the story should not be published until another season's experience had shown if it really worked.

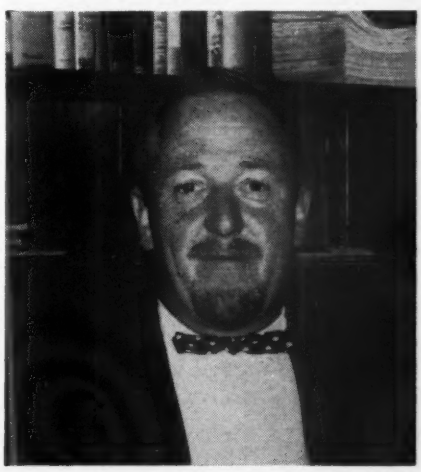
Started in actual operation in November, 1949, the improvement in delivery efficiency has been noteworthy. The calendar year 1950 showed a 10% improvement over the year 1949 in gallons delivered per hour, and the first half of 1951 shows another 10% improvement over the same months of 1950. At the same time, the inside work has been reduced to where one degree-day operator and dispatcher handles 1,500 accounts in two hours a day, even in January.

Single form System

The system involves only one form, which serves as a driver's card, degree-day projection card and hot water card. All information needed for the proper operation of fueloil delivery is on this one form. "You can imagine the ease of operation," says Cross, "when I tell you that we have reduced the number of forms from three to one, the number of files from four to one, the number of steps in procedure from nine to four and the number of daily hours from five to two.

The system combines the degree-day system with a route system. In the congested city areas, strict degree-day operation is used; in the suburbs and outlying areas, it's a route system controlled by the key account in each zone.

The filing of the single card in the system is by geographic zones and then alphabetically by streets within the zone, and, of course, numerically on each street. The card is 3½ x 8 inches, and a visible file is used, of the Kardex or Acme type with flat pull-out drawers. Only one edge of the card is visible and that edge shows the projected degree-day figure. The dispatcher in glancing through any route, any zone or street, sees at a glance when every account is due on degree-day operation. He can also see how many are due tomorrow, or in two days or a week. This not only provides great flexibility in planning his day's



Jerome W. Cross

work, but also enables him to make some fairly decent deliveries during a warm spell or to work ahead over week-ends.

Accounts that prefer to order by phone are also kept in the same file. This gives the dispatcher a chance to better anticipate his work load and also gives the sales department a good check against losses.

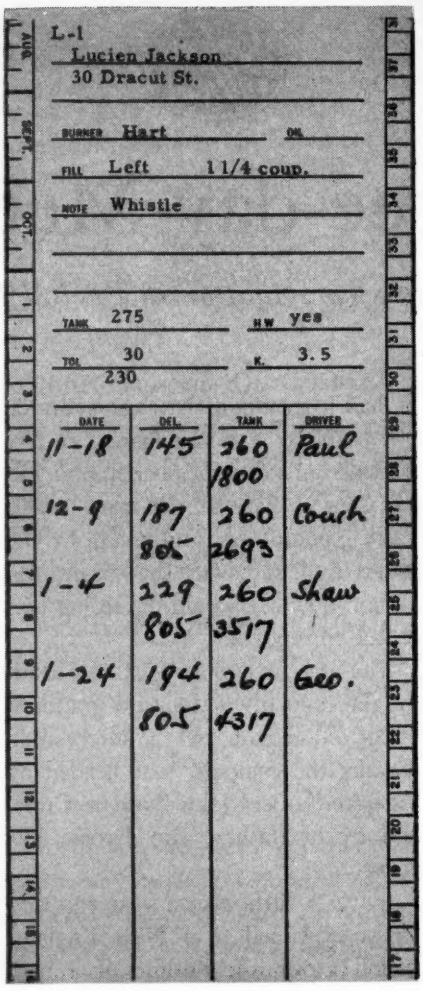
With only the degree-day edge of each card visible, a misfiled card cannot result in a run-out because the card itself comes up for delivery on due date. With the file cards arranged in order down each street, they are already routed for the drivers when they are pulled as they come due.

One important advantage of the new card system is that it combines degree-day projection with hot water. "We have always had trouble," says Cross, "controlling deliveries in late spring and early fall when hot water use is normal and there is a small heating load. Cold weather is easy . . . summer with hot water only is easy, but those in-between spells have brought headaches.

"The best we have been able to do is to show on our visible margin during the spring and fall the due date on degree-days—plus the due date on hot water. The dispatcher must use good judgment, for neither date is good by itself. If you wait for either one the customer runs out, but by seeing both dates at a glance, the dispatcher can estimate the right due date."

Variable tank Reserve

Another refinement in degree-day operation by Cross is the variable tank reserve. The normal method of using a 50 to 75 gallon reserve on all 275 gallon tanks is archaic in his opinion. "For example," he points out, "a customer with a 275 tank and a K factor of 1 is expected to get a 200 gallon drop, leaving a 60 gallon reserve (260 is the practical working limit). With this K factor the 60 gallon reserve is 60 degree-days of oil, or an average of 1½ days' supply in winter. Now take another 275 tank account with a K factor of 5. The reserve factor is now 60 x 5 or 300 degree-days, which is 7½ days' supply. In other words, you are giving your best accounts 1½ days' insurance and your smaller ones five times that amount."


L-1
Lucien Jackson
30 Dracut St.
BURNER Hart OIL
FILL Left 1 1/4 coup.
NOTE Whistle
TANK 275 H.W. yes
TOL 30 K. 3.5
230

DATE	DEL.	TANK	DRIVER
11-18	145	260	Paul
		1800	
12-9	187	260	Couch
	805	2693	
1-4	229	260	Shaw
	805	3517	
1-24	194	260	Geo.
	805	4317	

This single card, *3½" x 8" in size, is the only form used in the complete degree-day operation. It is filed in a visible index type of folder with only the edge showing. The figures along the edge represent degree days. For example, the figure 12 represents 1,200 degree-days. When 3,700 degree-days are past, the card is reversed and the higher numbers appear. Three summer months are printed on each side of the card for hot-water use projections. Note that the degree-day calculation is made right on the card each time after the driver returns it from a delivery.*

The company has more recently attempted to level all accounts to a two-day reserve by planning to make deliveries according to the following formula:

K fact.	*Reserve*	*Del.*
to 2.5	60 gal.	200
2.5 to 3.0	40 gal.	220
3.0 to 4.0	30 gal.	230
4.0 to 5.0	25 gal.	235
over 5.0	20 gal.	240

Probably the best indication that the new one-card distribution system is working well is shown in the table, "Gallons delivered per Hour." Notice that the new methods were started in November, 1949, and that the improvement since then has been most significant.

Gallons delivered per Hour

	1948-9	*1949-50*	*1950-1*	*1951-2*
June ..	414	452	531	538
July ...	337	432	458	—
Aug. ..	328	393	457	—
Sep. ..	313	431	463	—
Oct. ..	424	461	529	—
Nov. ..	413	481*	542	—
Dec. ..	486	550	594	—
Jan. ..	509	532	593	—
Feb. ..	540	550	629	—
Mar. ..	544	621	627	—
Apr. ..	534	576	649	—
May ..	450	651	525	—

* New system started here. By calendar years: 1948, 414 gallons; 1949, 507 gallons; 1950, 558 gallons; 1951, 607 gallons.

In studying a delivery system that is totally dependent on a single card, the visitor's first question is, "What if the card is lost?" Cross explained that while an occasional card has been lost by the drivers, no customer has ever run out of oil as a result. It can hardly be lost for more than two days without the fact coming to notice. Whenever a card is out with the driver the transparent slot from which it was taken shows a different color — it shows the buff background of the holder. If it is missing for more than one exchange of cards between driver and dispatcher it is almost sure to be noticed. On the card's holder in the visible file the dispatcher has noted across the corner in pencil the customer name and K factor, so if a card is lost a new one is started without delay. However, this loss experience is too remote to seriously consider.

Another question was about the condition of the cards, what with drivers taking them out several times a year. A check of year-old cards showed them all to be legible. A few were smudged, but not enough to obscure the figures.

Asked the nature of the routing system used in outlying areas, this is simply a degree-day operation based on one customer, the one with the lowest K factor, and then every other customer in the zone with higher K factors (lower consumption rates) are

served on the same trip. If, for example, Mrs. Rich needs oil every 400 degree-days the driver on that trip catches every house that will need oil before the next 400 degree-days roll around. Thus the degree-day calculation is actually made for every customer, but if they are the smaller consumers in these zones they get smaller than average drops.

Paul Monette, the dispatcher who handles all of this, was a former truck driver for the company. He also handles all coal dispatching for both the Andover and Lawrence yards, some 20,000 tons a year including the industrial business.

The Cross Co. sold last year about three million gallons of heating oil at retail, about another million to commercial accounts and three million gallons of residual fuels . . . a total of seven million. The company has 125,000 gallons of storage and operates its own over-the-road transports to bring oil from a tidewater terminal 18 miles away. Of course the transports deliver the industrial fuels direct, without going through the company bulk tanks.

In fact, a small amount of light heating oil is also delivered this way since the company is trying out a semi-trailer on retail No. 2 oil customers. Its record with this unit last winter was so encouraging that it is giving serious thought to expanding this kind of operation. At the winter's peak period this semi-trailer job was delivering two loads a day of 4,500 gallons each, and this included the 36-mile round trip each time to load.

This semi-trailer is not brought into the central-city congested areas, but is limited to suburban and outlying spots. In addition, the company operated last year on retail deliveries a 2,000-gallon and a 2,500-gallon truck, with these three units averaging nearly a million gallons each for the season.

While on the visit to Lawrence to look into this degree-day story, the author was given by Cross a number of records of truck operating costs. These are particularly informative because they compare several sizes of trucks from 1,000 gal. up to 4,500 in all of the details of operating costs. Instead of bringing this material into the degree-day story it will be written next month as a separate study. To whet your appetites, the total delivery costs with all truck expenses and driver wages range from .55¢ to .98¢ for the various trucks, but average under .60¢.

Cross is in the oilburner business, selling the Delco line. Last year the company made 275 installations, all sold by two men. This year is slower on burner sales, results in the first six months being only about half of 1950. Lawrence is a textile mill town, with four very large plants and many small ones. At present, the New England textile business is not too rushing, with the result that the town has 12,000 unemployed . . . and this in a total population of 85,000. Naturally, the unemployment is temporary . . . it's in a transition period, but while it lasts people don't spend more than they have to. Burner sales will probably get active again before long.

The two burner salesmen also sell new oil accounts. They are paid a high rate for getting oil contracts the first time, but they have no renewals. Those are the responsibility of the office staff. Cross takes the position on this that once the account is brought into the company good treatment will hold it there . . . that if it's lost that would be the company's fault, not the salesman's. The salesman gets his reward all in one shot, the first one.

When a coal company goes into the fueloil business and then into burners it is always hard to decide what to do about selling the old customers off of coal onto oil. It is a hard thing to do. They always want to sell the other coal man's customers the oilburners.

Like most coal companies in the oil business, Cross first came into it defensively. After generations in coal, the sales peak in that fuel was reached and passed in 1930. Three years later the company first entered the fueloil business, then in 1937 started selling oilburners. But it was not until two years ago that the company finally capitulated on the point of who's a burner prospect. It was in 1949 that Cross first let his burner men solicit Cross coal customers. It is quite remarkable that the company could have built the fueloil gallonage it did by selling to coal customers of other companies . . . but they did it.

The story, the history of the Cross Coal Co., is fairly typical of the transition of the wealthier coal families of New England. They took on oil to sustain an economy as coal sales fell back, but they still loved the coal business. It was not until oil sales had passed and then had doubled the annual coal billing that they finally took the slippery stuff into their hearts.

With a small city atmosphere, practically a big town, Lawrence could give Cross a nice business just on an old-school-tie basis after four generations. A lot of coal men counted on that, but Cross has promoted sales pretty vigorously year after year. Nostalgia didn't retard things much, particularly with the present young Jerry Cross at the head of the organization.

Electronic Controls for Oilburners

Part II. Development of Circuits and operating Influences

by
George S. Whitney*

THE FIRST ARTICLE in this series on electronic controls appeared in the May issue. It was a source of fundamental concepts for interpretation and understanding of the material now to be presented.

A typical flame failure control circuit is shown in Fig 6. This circuit is not selected with any consideration to its relative merits but is used to exemplify circuitry only. In attempting to analyze its electrical operation, it should be broken into several parts and each separately analyzed. The first section to be analyzed should be that which is external to the control box itself including only the relay contacts in the control box.

Fig. 7. In selecting this portion of any flame control circuit first, it is possible to analyze the value and ignition circuit from an electrical view point without being confused with a maze of wires. Those in the electrical power field reduce the confusion in tracing prints by numbering or lettering the ends of wires which are connected together with similar indicators. This will help in tracing these circuits. For example: label the A.C. supply wire A and B. Trace A and mark the points with which it connects such as A on the left side of the "stop" button and the right side of the control transformer primary. Line B is connected to the left side of the transformer, to one side of the ignition transformer of the pilot valve, and to the main oil valve.

This really simplifies the tracing of the circuit for as one looks at the main oil valve and sees the terminal B it is not necessary to retrace it to the supply, but to merely look at all points labeled "B" and realize it connects to all of them and they in turn are all connected to one side of the supply. Inspection of the circuit to see where the other sides of the ignition transformer, pilot valve, and main burner valve are connected is necessary. All of these connecting wires have their ends numbered with similar markings to speed up the tracing of the circuit.

The time has come to push the start button and to determine what happens. Inspection of the diagram shows by direct connection line A is connected to A side of the "stop" contacts. The "stop" bar contacts to point 4 which leads to the right hand side of the "start" button and moving fingers 4 and fixed contact 3 of the relay contacts. Consider at this time going from right hand side of "stop" to right hand side of "start." The depressed "start" button now connects supply "A" to the left side of "start" point 2. This will connect point 2 on the pilot valve and 1 on ignition transformer to supply side A. (Circuit for ignition transformer goes through relay contacts 1 and 2 which are closed.) Tracing the other sides of the pilot burner valve and ignition transformer, they are found to be connected to the other side of the supply. The pilot valve is now energized. This allows the fuel to pass out of the pilot burner.

At the same time, the ignition transformer is connected to the supply voltage and will furnish a spark to ignite the gas coming out of the pilot burner. This all happens when the start button is pushed. If the relay were to stay unenergized, the pilot flame and ignition transformer would stop the instant the pressure on the start button was released. The next problem is what should happen so that the operator does not have to hold down the push button to keep the pilot light

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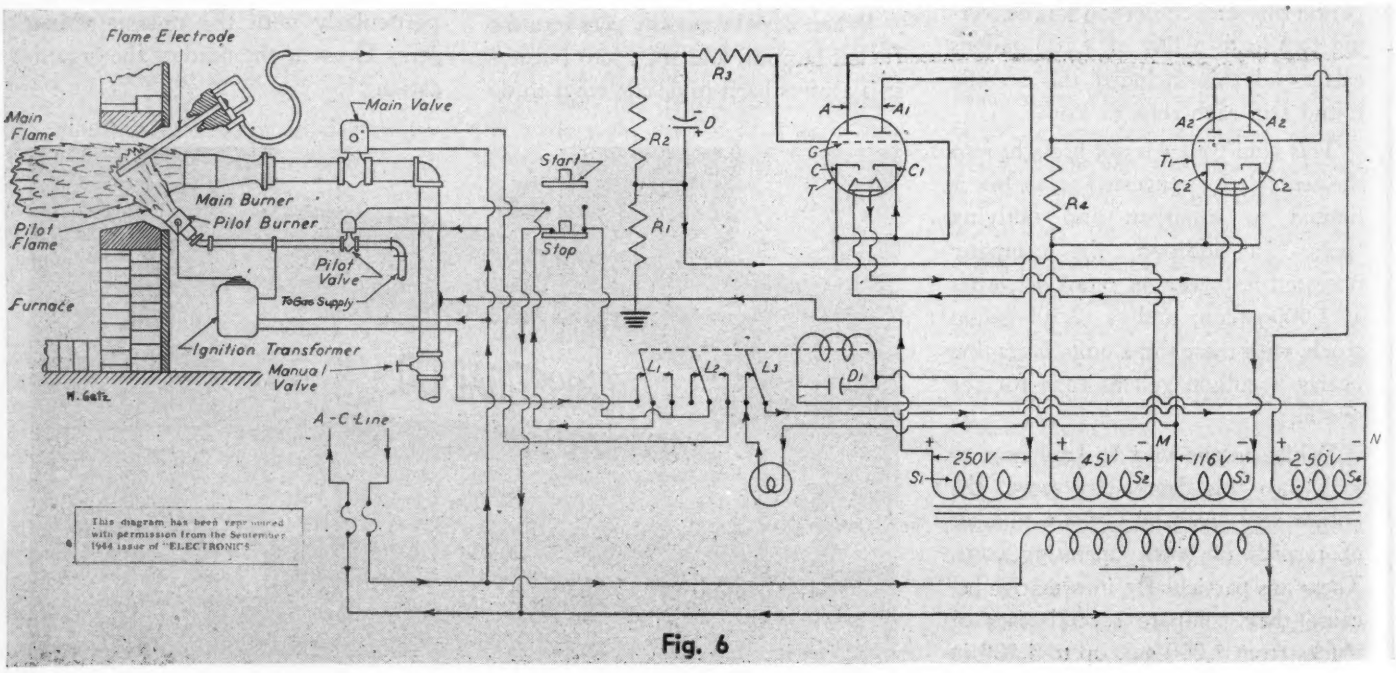

Fig. 6

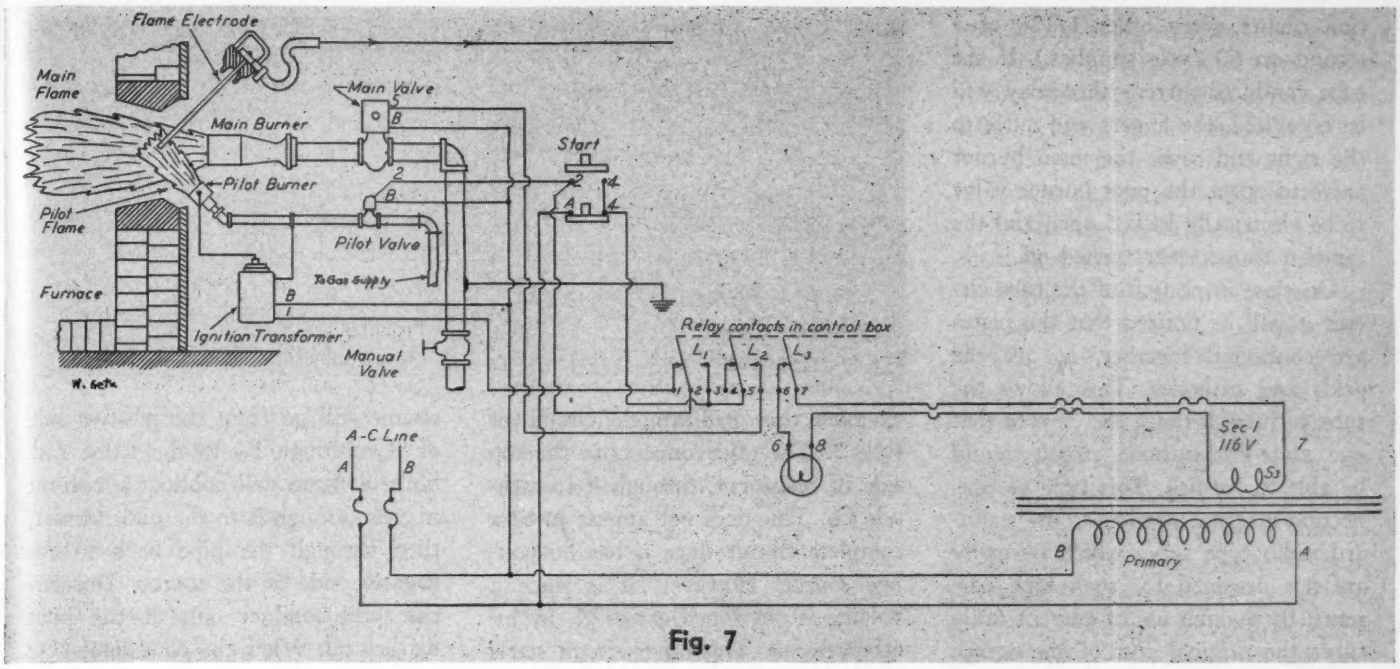

Fig. 7

on, and what happens to allow the main oil burner valve to open. This is what the electronic relay should do if it becomes energized.

The flame electrode is the only external portion of the circuit not now assigned a responsibility in the circuit. This component must be responsible for carrying a message to the electronic control telling it conditions are correct for safe operation to energize the relay so the operator can remove the pressure on the start button.

When the relay is energized the moving fingers move to the right. Finger 2 will contact fixed contact 3 on the relay which forms an electrical short across the "start" button. Now the operation of the pilot burner valve does not depend upon the "start" button being depressed. At this same time, several other things happen. Tracing from the A side of the supply to A on the stop button through the "stop" contacts to 4 on the right side of the stop button, then to moving finger 4 on the relay contacts (relay is energized) to fixed contact 5 and from here to point 5 on the main burner valve, the other side of which is connected to B side of the line, this forms a newly completed circuit. This circuit has caused the main burner valve to be energized. Contacts 1 & 2 have opened de-energizing the ignition transformer.

To summarize the operation so far, it can be concluded. If the start button is depressed or "pushed in":

(1) The ignition transformer is energized.

(2) The pilot burner valve is opened.

(These two operations should result in the fuel from the pilot burner being ignited.)

(3) When the pilot flame ignites it causes the flame electrode to set the electronic control into operation energizing the relay.

(4) When the relay is energized the moving fingers move to the right engaging other stationary contacts. This action energizes the main burner valve and closes a contact shorting across the "start" button, contacts, allowing the operator to remove the pressure on it, keeping the pilot valve energized.

(5) The ignition transformer is de-energized.

(6) The "stop" contacts are electrically between "A" and other components of control in the circuit, so when depressed will de-energize all valves, etc.

The assumption so far is: The relay was energized due to the flame rod's activity in the electronic circuit. Likewise, we could assume the flame rod's action in the electronic circuit will de-energize the relay if the pilot flame goes out and closes the supply valves. This is a desired action for flame failure control.

Fig. 8 represents the circuit including the relay coil. A complete circuit must include a source of power, (transformer secondaries S_2 & S_4), a unit to be operated (the relay) and a switch arrangement (the tube).

The transformer furnishes A.C. supply. This will cause the current to flow out of one side of the transformer winding one half the time and out the other side the other half of the time. Now when it is flowing out the right left side, this will be considered a positive side of the source. This will

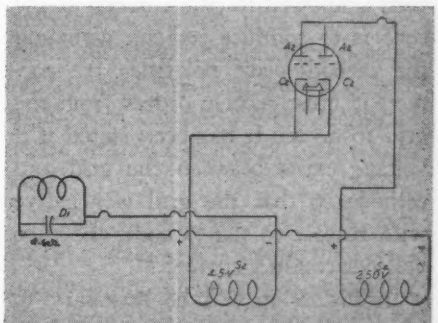

Fig. 8

be the time the plate of the tube will be connected to a positive supply and will pass current. Observe that the 250 and 45 volt windings are in opposition so actually only 205 volts will be effective in the circuit. Since the 250 volts is the larger of the two, its polarities rule the circuit and consequently the cathode is connected to the negative side of the power source as it should be if the tube is to conduct current. (Keep in mind this ac-

tion occurs every other 1/120 of a second on 60 cycle supplies.) If the tube conducts current this relay will be energized, the fingers will move to the right and cause the main burner valve to open; the pilot burner valve to be electrically locked open and the ignition transformer turned off.

On close inspection of the tube circuit it will be noticed that the plates are connected together, so are the grids and cathodes. This allows the tube to furnish twice the current that one plate-grid-cathode circuit would be able to furnish. This type of connection makes it possible to use standard radio type tubes which normally are not designed for such high currents. By making use of current radio tubes the original cost of the equipment and replacement of tubes can be minimized. This circuit is furnishing current to the relay in spurts of 1/120 of a second apart. This will tend to make the relay chatter as it is re-energized when attempting to open during a non-energized period.

The condenser D across the terminals of the relay steadies out the spurts of electrical energy. To do this it stores up part of the energy during the current flow period and feeds it to the relay during the no current flow period, thus helping it to remain energized thoroughly all the time the tube is allowed to pass current. If the tube is to conduct current, assuming the cathode-plate polarities are correct, it must receive orders from the grid to do so. It has been stated if a voltage exists between the grid and cathode so that the grid is negative with respect to the cathode, the tube will not conduct current.

In Fig. 9 it will be necessary to examine this grid-cathode circuit of tube 2. The grid connects to the top side of resistor 4, through it to cathode C_2. This does not appear to be a complete circuit since it has no voltage source. However, it is since a voltage is developed across R_4 in another circuit. This other circuit starts with S_2 secondary. The right side of which goes to the cathode C through the tube to the plate A down through R_4 to the other side of the source. If tube 1 allows current to flow it will pass through the resistor R_4. This current flows in the bottom of R_4 and out of its top. This direction of flow will create the polarities as shown in Fig. 9. These polarities will make the grids of tube 2 negative while the cathode is positive. This action will not allow tube 2 to function as desired if the relay is to be energized. This means no voltage should occur across R_4 if tube 2 is to function. To keep tube 1 from functioning and thus not developing a voltage across R_4, the grid of tube 1 must be negative with respect to its cathode C.

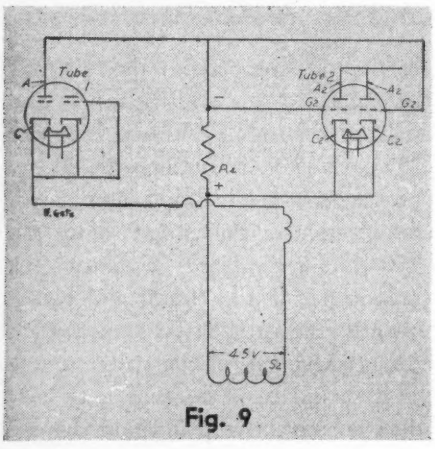

Fig. 9

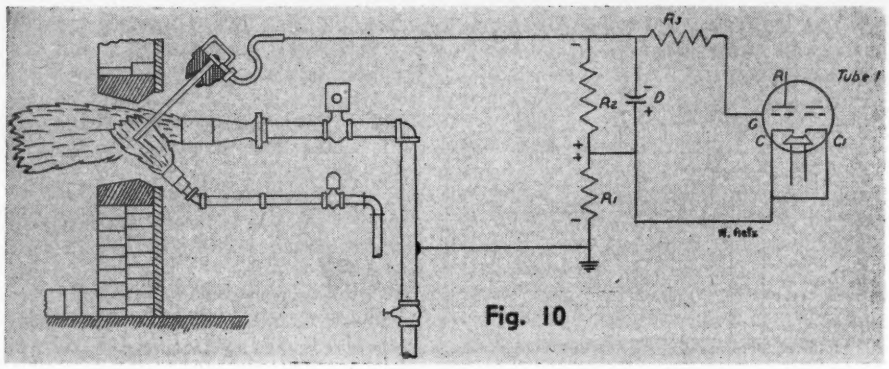

Fig. 10

Fig. 10 exemplifies the grid-cathode circuit of tube 1. This circuit starts with cathode C connects to bottom side of R_2, through R_2 to left side of R_3, through R_3 to grid G. Again there is no obvious source of voltage. As in grid-cathode circuit of tube 2, this source appears across R_2. (This voltage is pulsating due to it being derived from an A.C. source. The condenser D has a tendency to smooth it out so voltage exists across R_2 continuously when current is allowed through it.) In order to determine when current is allowed through R_2 it is necessary to analyze the remainder of the circuit Fig. 10. For the moment assume R_1 resistor is replaced by a battery with polarities as shown. The circuit will go from the positive side of R_1 through R_2 to the flame rod. Since a flame will conduct a current it goes through it to the pilot burner, then through the pipe back to the negative side of the source. This circuit will conduct only if the pilot flame is on. When the pilot flame goes out no current will flow.

Now consider the flame on. Current flows through R_2 from R_1. Where current flows into a resistor not acting as a source it becomes a positive side of a voltage drop and the other end of R_2 becomes negative. Now in tube 1 grid C is connected to the negative side of the same voltage drop. This prevents current from flowing from plate A to cathode C.

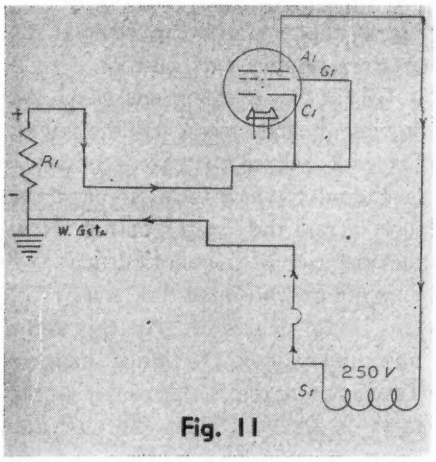

Fig. 11

This in turn prevents current from flowing through R_4. No voltage across R_4 allows tube 2 to function, thus operating the relay. The whole operation depended on the flame of the pilot contacting the flame rod. (Conclusion —no flame, no action—no energized relay—no open valves unless manually operated.)

Fig. 11 shows the only remaining circuits in the electronic control system. It is known as a simple rectifying circuit whereby an A.C. voltage is

changed to a D.C. voltage. This is readily understandable since the tube will allow current to flow in only one direction. A one direction flow of current through R_1 represents a voltage reaction similar to D.C. This voltage developed across R_1 now fits into Fig. 10—explanation when a battery was considered a proper substitute for R_1.

Briefly, here is the action when the pilot flame goes out due to any cause. There will be no current flow through R_2, making the grid G lose control. This allows current flow between A and C in tube 1. This current will flow through R_4. The voltage thus established across R_4 allows the grid G_2 to stop the current flow between A_2 and C_2. The stopping of this current de-energizes the relay. This will result in all the valves returning to a closed position. In this circuit it is necessary for the operator to manually restore the pilot flame if any interruption of fuel supply occurs. The pilot light is an indication signal, lighting only when the pilot flame is not burning.

Many circuits do not show the heaters of the tubes connected to a source of power. They are connected either in a series, parallel, or in a combination manner. Their purpose is heating only so it is not essential that the heater circuitry be shown.

There are other means of flame detection than the flame rod. Many systems employ a photo tube or "electric eye." The principle of the "electric eye" is similar to that of the flame rod. It is a unidirection current component. Its operation is directly dependent on the flame for its action. Several systems employ both flame rod and "electric eye." The installation of either of these units for "sensing" flame requires following exacting recommendations. The scope of this article does not include these procedures.

The advantages of electronic controls as compared with other systems, are very ably summed up in the July 1950 issue of FUELOIL & OIL HEAT in the article "Electronic Controls for Big Jobs," by J. W. Schulz.

* * *

Mr. Whitney's articles give details on electronic tubes and circuits, and outline how these can be applied to oil burners. He clarifies electronics for those who will give time to study the subject.

The particular circuit Mr. Whitney chose to describe is, to his mind, the simplest electronic set-up that can be used for a large oilburner using gas ignition. This circuit is unusual in employing constant ignition. The controls monitor only the gas pilot, do not monitor the oil flame. Electronic arrangements different from this are used on many installations. However, the principles of electronic tubes and circuits, covered by Mr. Whitney, apply to all electronic controls for oilburners.

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PAD proposes Ban on new Gasheating

THE BAN on new gasheating installations. which has been proposed by the Petroleum Administration for Defense and news of which was first revealed in *"Petty's Oil Letter,"* has been met with opposition from the gasheating industry, as expected, but is also being viewed with suspicion by the coal and oil industries. The coal industry is reported to suspect that the whole situation is nothing more than a maneuver to obtain more steel for gas lines and the oil industry has joined in protesting the ban as a step toward "end-use" controls of all fuels.

After news of the proposed ban had broken, PAD discounted reports the ban would be nationwide, but instead indicated that it would not be applied in Mississippi or Louisiana, "Nor in any state west of the Mississippi River, except possibly in some areas in Missouri, Iowa, Nebraska, Minnesota and South Dakota." The statement continued with the observation that a limitation order restricting new business in other states east of the Mississippi River probably would be necessary and admitted that there are areas in the affected zone where the gas supply "should be sufficient to permit exemptions to or modifications of such limitations on new business as it may be necessary to impose in a restriction order."

The order as tentatively drafted, PAD said, after a given date would bar suppliers of natural gas from furnishing gas to any new space heating customers, including new installations or conversions in homes or any new large volume customers without approval by PAD. At the same time, PAD acknowledged that consultations would be held with the gas industry before the order was issued and that conferences were scheduled. The Gas Industry Advisory Council when it met on July 23 was consulted about the order. Details were not available at press time.

The Gas Appliance Manufacturers Association and other interested groups raised immediate protests when existence of the order became known. H. Leigh Whitlaw, managing director of GAMA, said the problem can be solved by existing procedures, with public service commissions of the different states issuing restricting orders as they customarily do when the need arises. The Association urged the government to "take a look at the whole fuel picture and quit discriminating against gas," and advocated the discontinuance of duplicate uses and abuses. President Frederic O. Hess asked why more steel isn't allocated for line pipe if shortage of the pipe is the crux of the order.

GAMA also declared that the effects of the threatened ban include not only drastic curtailment of home construction, but also unemployment for construction workers, plumbers, steamfitters and producers of space heating and central heating equipment, as well as financial disaster for the manufacturers and distributors of such equipment.

Information seemed to indicate that the ban would be less drastic than origginally supposed, with the possibility that eventual gas restrictions would be no more strict than state utilities commissions would have been required to impose in areas where shortages threatened.

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F. R. Dickerson has been promoted to the position of general manager, pump division, Geo. D. Roper Corp., Rockford, Ill. He began his business career in 1936 with Roper, became sales manager in 1948 and has held that position until his new appointment.

Webster Electric service Plan

Dealer training Innovations used in Program for oilburner Dealers

THE SERVICE PLAN for Oilburner Dealers, being undertaken by Webster Electric Co., Racine, Wis., has been developed with a two-fold purpose in mind. First, it is aimed at improving the quality of service rendered by the oilburner dealer or his servicemen and second, it seeks to cut down on the non-essential use of time and facilities so often imposed upon Webster's Authorized Service Stations.

These Service Stations play a key role in the execution of the program, which was first outlined during a meeting at the January Heating and Ventilating Exposition in Philadelphia. There, James H. Lahey, of the company's Industrial Division, explained the thinking behind the program and detailed how it would be put into effect. On June 26, again in Philadelphia, and on June 28 in Boston, Webster Electric was host at the first two in a series of meetings that are to be held, during which Service Station personnel will have the Plan explained and will be given a preview of its exact format and make-up.

Basically, the Plan is this. Each of Webster's 63 Authorized Service Stations will arrange in its own area to hold small group meetings of oilburner dealers and their service personnel. Such meetings are to be strictly business and, preferably, will be limited in size to about 25 or 30 people, the idea being that this number will more readily absorb the information contained in the program and, because of its size, will be more likely to stimulate questions and discussion.

The Plan is available to the Service Stations as a package, 15 kits being furnished by Webster and rotated among them on a year-'round basis. Each kit consists of an Eko-Tape recorder, a shipping tube containing two sets of charts and an easel for displaying them. Both units are small and compact, present no problem of transportation or setting-up for the meeting. In other words, the Service Stations receive the complete text for the meeting, which is played back on the recorder, including the explanatory and demonstration charts.

James H. Lahey *of Webster Electric's Industrial Division is shown explaining the company's "Service Saver Plan" to a group of service station representatives.*

The meeting opens with a greeting from the sponsor, the Authorized Service Station, and then each person present is asked to stand and identify himself by name and company affiliation. Small memo pads are distributed, the front page of which is a card. These are filled in with names and addresses and collected before the meeting adjourns. The cards are forwarded to Webster Electric at Racine by the Service Station and shortly after the meeting, each person who attended the meeting receives a mailing, supplementing the information disseminated at the meeting and focusing the attention of the dealers and servicemen on the facilities offered by the Service Station.

The moderator conducting the meeting starts the tape recorder and for the balance of the session the transcribed talk cues in with the charts. Each of these is numbered, with the moderator turning from one to the next as the text directs and using a pointer to indicate the subjects that are being explained. The large-sized charts, particularly in exploded and cut-a-way views, show the components making up Webster fuel units and transformers, clearly highlighting construction and operating features and demonstrating field checks.

Continuing for an hour and a quarter, the first 50 minutes of the talk is devoted to a discussion of "saving service" and what it means and a thorough schooling in fuel units, their application and service. At the end of this portion of the session, there is a break, and then the meeting continues for its final 25 minutes.

The purpose of numbering each chart is to enable those attending to mark down on the memo pads the numbers of the charts about which they want to ask questions at the end of the class. The moderator then goes back to those diagrams, answering the

queries and any others that develop.

The final charts take the dealers and servicemen through a complete check and the corrective measures that should be executed on a "No heat" service call. This, in considerable detail, enumerates each of the possible reasons for the complaint and step-by-step describes corrective steps.

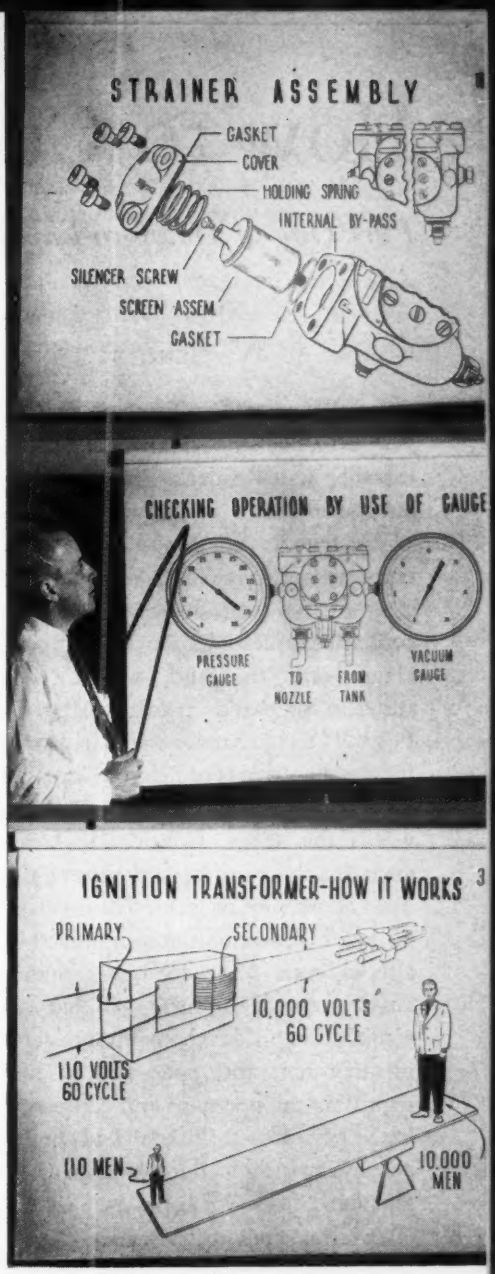
B. T. Weichers, sales manager, Webster's Industrial Division, is naturally enthusiastic about the Plan, which he envisions as a form of insurance protecting the business of the Authorized Service Stations, that at the same time, will enable them to help the dealers in their area to improve the quality of the oilburner service they render. In addition, with Webster producing two important components of every pressure burner, the company recognizes its double interest in each burner in use and feels justified in its efforts to sustain the good record of automatic oilheat.

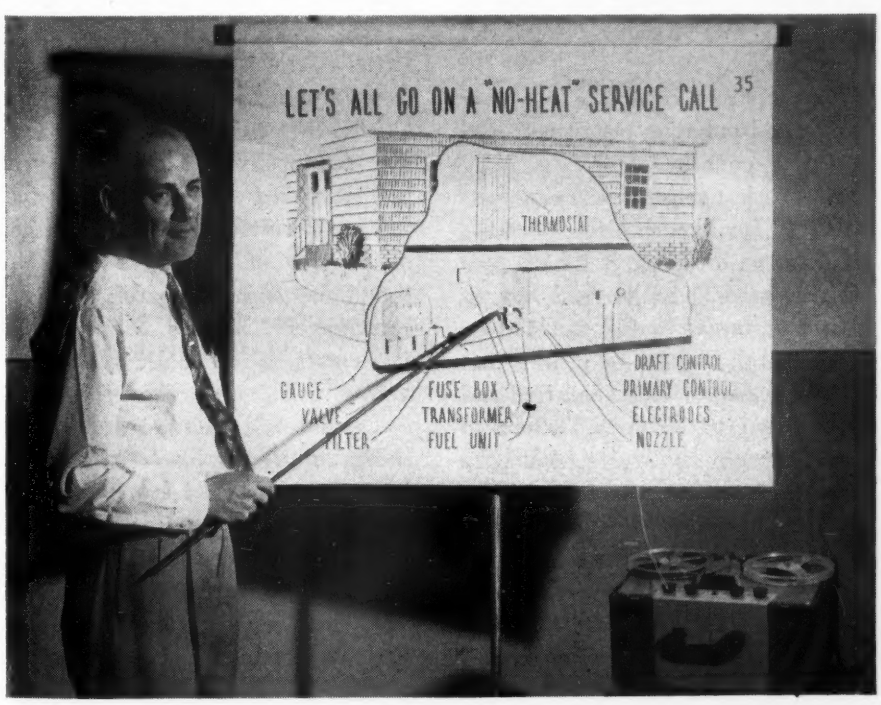
In developing the educational kit, the company has undertaken a program of industry training that, to its knowledge, has never been done in quite this way. By establishing a fixed program and providing all the materials needed to conduct the meetings, Webster can control very closely the physical program, while retaining a considerable amount of flexibility in its make-up. It is comparatively easy to change any of the charts, or substitute new ones, if occasion demands, and the transcribed text likewise can be modified or altered to conform to changing conditions.

Here are *three charts, typical of those used in Webster Electric's meetings.*

Final phase of the Plan calls for Webster to make monthly mailings to a list of some 15,000 selected dealers, calling their attention to the Authorized Service Stations and the help they can offer and, at the same time, stressing the quality of Webster equipment.

This is not the first time that the company has embarked on an extensive dealer education program, both in its advertising and direct mail promotion, but it is the initial effort to personalize the training and place it upon an informal basis at the local level. The packaged training kit enables a uniformity of presentation of an extremely worth-while and needed service story that cannot help but make the field more aware of Webster equipment and its group of Authorized Service Stations. Of more importance to the average oilburner dealer and his servicemen, though, it represents an opportunity for them to learn, or be reminded, of the fundamentals of good oilburner service and the benefits that can accrue from it to themselves and their customers.





A "No heat" service call *is covered in this, one of the concluding charts in the program.*

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B. B. Magee has been advanced to Director of U. S. sales by the Iron Fireman Mfg. Co., Cleveland, Ohio. He has been sales manager of the company's northwest division with headquarters in Minneapolis since 1929. Before joining the company he served as sales manager for an Iron Fireman dealer in the northwest territory.

How to Cure Flame Pulsation

Part One of Down-to-Earth Facts on Service Steps for Trembling Furnaces

by
J. W. Schulz

CONFIDENTIALLY, FUELOIL & OIL HEAT always has trouble putting together its "Reader's Problems" department. That's no fooling; it's a fact.

The trouble is that most of the questions sent in by readers are hundreds of words too long. Some of the letters containing questions are made up of about one thousand words. The answers prepared painstakingly by FO&OH technicians are similarly long, for the objective is to help the inquirer out of his trouble no matter how many words this takes. Considerate treatment for the inquirer is the big thing. Two hours may be given to answering his letter. His initials are scrambled or altered, even, when the question-and-answer appear in print, so that his competitors in his home town can't identify him and poke fun at him regarding the poignant and confessing letter he wrote to FO&OH about his perplexing technical problems on a certain job.

All this puts the "Reader's Problems" department into trouble because most of its questions-and-answers are too long to be fitted neatly into the space allotted to this department, in the magazine pages.

The big-cry is: "Can't we ever get a five-line question that calls for a five-line answer?"

Some ten years ago, pulsation and flame noise began to be the pet topic in the longest letters that called for the longest answers. Joseph J. Johnson, whose initials couldn't be scrambled anyhow, would write in from Chicago to tell in hundreds and hundreds of words how his boss, owner of an oil company, had installed a new furnace-burner unit in his sister-in-law's house. Nothing but the best being good enough, this was the expensive Model So-and-So winter conditioner, fired by the Ultra-DeLuxe So-and-So pressure burner. Everything is fine but the pulsation, the letter goes on, and everything, but simply everything, has been tried to cure that. There's a list of 22 things which were tried to no avail.

Many a reply started out, "You must realize by now that there is no one, simple service remedy for such pulsation trouble as you describe. Five steps often used by service experts to end pulsation are described below. Some of these are not easy and inexpensive. You will have to use your best judgment regarding which of these steps to try first in the hope that they will end the trouble with least expenditure and least effort on your part. If you will follow through and employ every one of these five steps, the probabilities are 99 out of 100 that you will lick the trouble completely, for we know of no job on which pulsation was not ended by taking either the proper one of these steps, or all the steps listed."

Ten years ago, we couldn't give a 50-word answer that settled completely the pulsation problem, in our service men's "Heart Throb Department." We still can't today. That's one of the reasons many of the readers' questions-and-answers run much too long to appear in the "Reader's Problems" department.

But questions about the one easy step to end pulsation completely continued to pour in.

An article published years ago was labelled, "For Experts Only," because it dealt with flame pulsation and wasn't supposed to be read by oil-burner enthusiasts who, not having learned all the facts of oil heating life, would have become downhearted and disillusioned to learn the extent to which burners could give trouble by getting the pulsation habit.

Gaily enough, this early article on flame pulsation started out by saying a rugged individual, eager for adventure, still found a thrill in oilburner service work, because here he still found unclimbed mountains to climb, and uncracked nuts to crack. Flame pulsation, still an unsolved problem, stirred up the blood of the potential builder of the better mousetrap.

All this was quite a few years ago. If then the dyed-in-the-wool adventurer was overjoyed to find that there was flame pulsation loitering around the corner for him to encounter and vanquish, that same adventurer need not find oilburners dull today. They still offer the challenge of flame pulsation. More than that, this problem which ten years ago found no all-conclusive fifty-word remedy, has by now become an even greater problem.

Not that there aren't good reasons for these things!

If you are interested in pulsation but missed reading the feature article, "Pulsation is Music," by Stanley C. Paterson, you should dig out your June, 1951, issue of FUELOIL & OIL HEAT and read that article now. It relates that actually the basic theory underlying the cause of this phenomenon has been known, at least in some circles, for some time, and it goes on from there to give the details of physical laws related to flame pulsation.

Some of the good reasons for flame pulsation's continuing to be a popular service problem become apparent, from a dealer's and service man's viewpoint, as a result of studying the old and the new in warm air furnaces. The accompanying sketches show at the left a cross-section of an old-style warm air furnace, and at the right an outline of a new winter air-conditioner with no innards shown because every innards we sketched up tentatively resembled some well-known make of furnace.

The old-style coal-designed furnace shown at the left has, relative to its Btu capacity, these features (some of them undesirable in overall as far as oil-firing goes) which make for little or no flame-pulsation tendencies:

1. Great combustion volume. The space in which the flame is located is perhaps three times as large as is needed for excellent combustion. That refers, of course, to the flame size

suitable for this size furnace. Not only has the original combustion space provided for coal burning been converted to space for the combustion of the fueloil, but added to this is the space formerly occupied by the coal stored in the furnace, the space formerly occupied by the grates, and the space originally used for an ashpit. The overly great combustion space relates to overly great direct heating surfaces. Often these prove to be disadvantageous, remaining cool with oil-firing and gathering a soot film not formed in modern oil-designed furnaces which have smaller areas of direct heating surfaces that become extremely hot, hence collect no soot.

However, the great combustion volume of this old-style coal-designed furnace wards off tendencies of flame pulsation on starting and stopping and during normal operation.

2. This old furnace has flue passages which, being of relatively great cross-sectional area, provide low velocity for the flue gases. The products of combustion travel slowly through these passages, so slowly that flue baffling is invited to produce the effect of about half the cross-sectional area and twice the length of travel.

As a result of these large flue passages, the indirect heating surfaces of this old furnace are disgustingly ineffective, in the eyes of a designer of modern oil furnaces. By designing for many small, fast-moving streams of flue gas instead of the one sluggish and laminated stream this furnace provides, such a designer can make one square foot of indirect heating surface at least twice as effective as this old design makes it.

Yet, these large flue passages (and some times their short flue travel as well) help keep this old furnace clear of tendencies for flame pulsation.

3. Usually such an old furnace has a smokepipe needlessly large for oil-firing at a rate suitable for the furnace, and this helps reduce flame pulsation tendencies.

4. Made up of many cast-iron sections, often so poorly fitted together that frequent application of furnace cement to the joints is necessary to ward off gas-leak and air-leak trouble, this old furnace has innumerable air leaks and gas leaks. Such leaks kill a job's tendencies to pulsate, for they provide the equivalent of keeping the firing door open perhaps an eighth of an inch, which, of course, is well known for stopping flame pulsation on trouble jobs. The leaks almost inevitably found around the gun tube and bricked-up front of the ashpit often are sufficient by themselves to end pulsation tendencies on such an installation. To the effect of these, add the pulsation-deadening effect of any leaks around the firing and flue doors of an old furnace.

On the above-listed four scores, then, this furnace designed to burn coal has little tendency to give flame pulsation. This refers to the starting, running, or stopping flame pulsation often found on installations of compact, latest-type oil furnaces, which can be ended by such steps as keeping a flame observation door open an eighth or a quarter of an inch, or by providing air openings in the front wall or floor of the firebox.

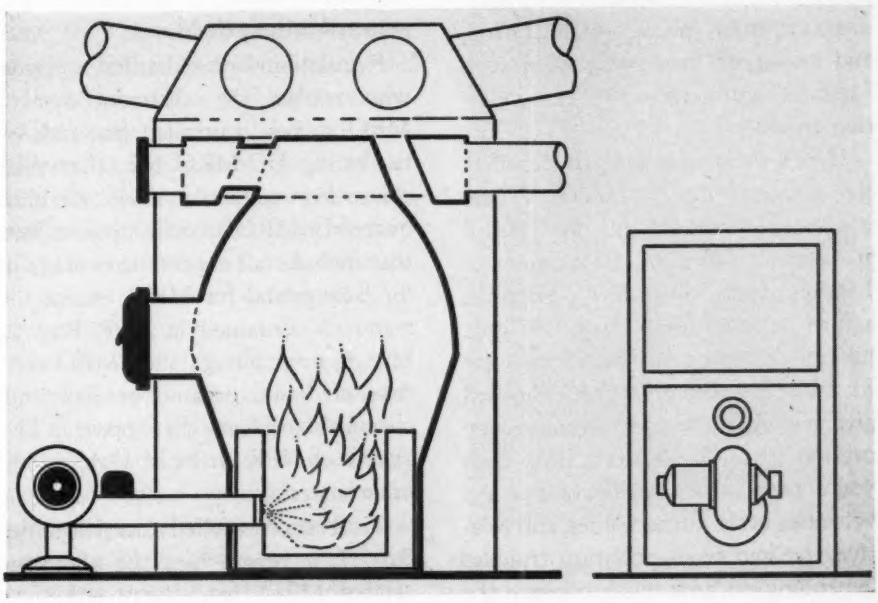
In contrast with the above-listed points, consider the characteristics of a modern oil furnace such as the one in the sketch. Consider this fired at its maximum rated input to produce approximately 600° or 650° stack temperature, and adjusted for a passable CO_2 reading of about 9%.

Bear in mind that the modern motif in oil furnace design permits no waste of material or workman's hours. You can't for one moment disregard the fact that price of a furnace counts with different equipment dealers, home owners, and builders of competitive small homes who order oil furnaces by the hundreds at a time.

1. This modern oil furnace has just about the proper combustion space for the oil flame that burns in it. There's no large space for an air cushion above the flame, as in the coal-designed unit.

2. The flue passages of this representative modern unit feature high gas velocity, compared to the older unit. In one way or another, the indirect heating surfaces are caused to work at high effectiveness that gives desirably low stack temperatures and great fuel economy without wasting metal. For example, small streams of products of combustion may cool rapidly in travelling at high speed through the flues. Turns, zig-zags, and downdrafting effects may assist in providing low stack temperature from indirect heating surfaces which contain relatively small amounts of surface, therefore cost little to make. By dint of thorough engineering work, effectiveness of the flue areas and rates of heat transmission are increased.

3. The smokepipe of the modern



For reasons given here, *the old furnace at the left has no flame pulsation tendencies; whereas when fired at rating the modern unit at the right may tend to pulsate. One way out of the trouble is to buy oversize modern furnaces and fire them at two-thirds of their rated gph input, but to solve on-the-job pulsation problems a service man must know answers other than this!*

unit is not outlandishly oversize; it is of the proper size for oil-firing.

4. The modern unit luckily has few of the air leaks and gas leaks found in old furnaces of the type shown in the sketch.

The modern unit obtains some of its flame pulsation tendencies, then, from having a proper-size combustion space, highly effective flues, proper size smokepipe for oil-firing, and freedom from fuel-wasting air leaks.

"Why do furnace manufacturers insist on building a small oil-furnace with the small combustion spaces and high-speed flues that give flame pulsation tendencies?" certain dealers complain. "We want furnaces with oversize combustion spaces, low draft drop, and low-speed flues. We want such furnaces because they don't give pulsation troubles."

Here's the simple and 100% effective answer for such dealers: Where you intend to fire 1.0 gph, don't install the furnace rated for a maximum of 1.0 gph. Install instead, for example, a furnace rated for 1.35 or 1.50 gph, provide a firebox of the proper size for 1.0 gph, and fire 1.0 gph. This will give you what you want: oversize combustion space, lower draft drop than you'd have otherwise, lower flue gas velocities in the furnace flues, and relative freedom from pulsation troubles depending on how much oversize the furnace is. As a bonus for the extra cost of the furnace, there'll be reduced fuel consumption, which is a good thing to have on any job anyhow. The big objective in buying the larger furnace is, however, to spend money wisely at the start in order to avoid later expenses for ending flame pulsation trouble.

To start out avoiding flame pulsation problems by installing oversize furnaces is a simple course, then, for dealers who have seen flame pulsation at its worst and are earnest about avoiding it in the future.

To tell service men how to end pulsation on existing installations is not that simple. Ending pulsation often takes time and money. However, a description of the methods actually being used today by experienced service men will form the second part of this article.

New NPA Regulations cover MRO Supplies

CMP REGULATION NO. 5, issued on July 6 by the National Production Authority, revokes NPA Regulation No. 4 and makes Direction 2 to Reg. 4 a part of the new Regulation.

The purpose of CMP Reg. 5 is to provide a uniform procedure for obtaining limited quantities of controlled materials and products and materials other than controlled materials for maintenance, repair and operating supplies, (MRO), as well as for minor capital additions up to $1,000. Procedures established by the Regulation may not be used to secure materials for personal or household use.

Regulation 5 provides that a person who applies the allotment symbol MRO to buy controlled materials or the rating DO-MRO for other than controlled materials must establish quarterly MRO quotas, upon a base that includes all expenditures made in the base period for MRO, except for materials contained in NPR Reg. 2, List A, even though such MRO consists of basic, organic or inorganic chemicals and items that appear in List A or B of NPR Order M-47A, among other materials.

To obtain controlled materials under Reg. 5, a person uses the allotment symbol MRO on delivery orders to purchase only that amount of controlled material actually needed for MRO and minor capital additions. For materials other than controlled materials, the purchaser uses the rating DO-MRO for quantities actually needed, and a delivery order bearing the rating DO-MRO, together with certification as provided, constitutes a rated order with an allotment symbol for the purpose of all NPA regulations and orders.

Repair parts and materials for repairmen under CMP is covered by CMP Regulation No. 7, which sets forth procedures for a person in the business of making repairs to obtain both controlled materials and products and materials other than controlled materials, for maintenance and repair work for persons who do not have and are not entitled to establish a quota under CMP Reg. 5. The Regulation does not limit the quantity of materials that can be secured without using the procedures it sets up, but any repairman who follows the Regulation in any quarter to obtain materials is subject to all its provisions. In addition, the Regulation imposes special restrictions on inventory.

The Regulation defines a repairman as "any person in the business of providing maintenance or making repairs commercially for other persons." The term also includes any person who reconditions or rebuilds damaged or used items for resale.

During the calendar quarter which commenced July 1 and each quarter thereafter, a repairman may use the allotment symbol RE on delivery orders for controlled materials actually needed for maintenance and repair work for persons who do not come under the provisions of CMP Regulation 5. For materials other than controlled materials, and under the same conditions, he uses the rating DO-RE.

Whether or not he operates under the provisions of Reg. 7, a repairman may not receive or accept delivery of any item of controlled material if his inventory exceeds an amount needed to operate his business as a repairman for the next 60 calendar days. He cannot receive or accept delivery of any item other than a controlled material if his inventory of that item exceeds a "practicable minimum working inventory," as defined in NPA Reg. 1.

Provisions have been established under both CMP Reg. 5 and Reg. 7 for applications for adjustment or exception where it can be shown that a person or company is suffering undue or exceptional hardship because of the regulations.

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Burl S. Watson has been named executive vice president, Cities Service Oil Co., New York, and *Emil Schram*, former president of the New York Stock Exchange, has been elected to its board of directors. Mr. Watson has been associated with Cities Service since 1917 and for many years was assistant to President W. Alton Jones. He became a vice president in 1940 and has occupied officerships in various Cities Service subsidiaries.

Gravity loading Rack used by West Milford Fuel

FOSTER FAIR, while in the Navy during 1946 decided he wanted to enter the fueloil business when he was discharged and returned to his home in West Milford, N. J. He wrote to Louis Swatos, a friend, and told him of his decision. Swatos proceeded to acquire a 1935 Ford tank wagon and when Fair returned the two began looking for customers.

They set up shop in what used to be the blacksmith shop in town. It was not possible to purchase the shop and the land that surrounded it because of the complications of multiple heirs involved in the estate that owned the property and the inability to get a clear title to it. However, they could rent the shop and since first occupying it, the two have remodeled and rearranged the interior so that today it boasts a large office room, part of whose walls are lined with steel shelves for storage of parts and supplies and another storeroom in the back of the building.

Sold 75,000 Gallons first Year

The first year the West Milford Fuel Co. moved 75,000 gallons of oil, using the Ford truck with a 650 gallon tank mounted on it. This year the firm's gallonage will approach the half million mark, delivered with the same tank, which now is mounted on a 1949 Dodge truck. This year's volume will be divided almost equally between kerosene and No. 2 oil, with the latter accounting for slightly more of the total.

West Milford is located in Passaic County in the Bear Range of the Appalachian Mountains, situated in an area containing many small and large lakes and frequented by a large number of summer visitors. The entire township covers an area of some 96 square miles and Fair and Swatos operate throughout it. Population in the township during the winter months is something under 5,000, but it approaches a total of 15,000 with the influx of summer vacationers.

In the same way, the normal number of customers for the company during the winter is close to 300, and this nearly doubles during June, July and August. Many of the summer cottages have kerosene burning water heaters, space heaters or floor furnaces—since a touch of heat often is needed on cool nights or on cloudy and damp days—and this represents a sizable volume of off-season gallonage.

Off-season Income

When the partners first started and were looking for sources of quick income, they capitalized on the shortage of refrigerators and installed an ice dock, which did a rushing business. Today, with nearly all homes, even the summer dwellings, wired or able to secure bottled gas refrigerators the ice business has fallen off to a trickle, but still is maintained for the convenience of those who want an extra supply of ice for parties or picnics.

Another source of off-season income started this year is a sand and topsoil service, which is paying dividends. Other supplementary lines that augment the regular revenue are oilfired heaters and appliances, which are not carried in stock, however, bottled gas tanks and meters, sold on a commission basis, and charcoal.

When the business first began Fair commuted regularly to Newark, N. J., taking a course in oilburner service and installation. He handles service for all the company's fueloil customers and does the installing of the oilburners that they sell. The company will install any make of oilburner a customer requests, but concentrates on selling Citro gun burners, because they have found them very satisfactory in service and the burners are manufactured in nearlby Pompton Lakes, which makes it easy to pick them up and presents no problem in securing replacement parts.

During the first year of operation, West Milford Fuel was unable to obtain its fueloil supply direct from a major oil company and had to make regular trips to Paterson, 25 miles away, and pick up what they could from a jobber there. Then, because they had to price their delivered fueloil to meet local competition, it was necessary to absorb the jobber's mark-up and operate on a very slim margin. That was corrected happily the next year when they signed up as dealers for Atlantic Refining Co., with whom they still do business.

Bulk storage tanks, for 12,000 gallons of product, are located on a 5-acre plot on the opposite side of town, installed to provide gravity drops from the over-the-road transports, which deliver oil to West Milford Fuel under contract, and gravity fill to its truck.

Foster Fair, *left, and Louis Swatos, right, partners in the West Milford Fuel Co.*

This land on which some day it is planned to locate the office and storeroom, is situated on a V-shaped tract, which fronts on two roads. Standing at the point of the "V", the left hand side of the property is almost 80 ft. higher and about 200 ft. distant from the right hand side.

This has enabled Fair and Swatos to install four 3,000 gallon tanks, two for kerosene and two for No. 2 fueloil, on reinforced concrete block foundations and connect them to fill valves on the lower portion of the property. The tanks are down far enough on the side of the hill so that the transports can pull off the road on a filled-in dirt section and unload product by gravity through 3" pipe.

Then, when West Milford's tank truck is to be filled, kerosene or No. 2

. . . . Gravity loading Rack

Exterior *of the office of the West Milford Fuel Co., located in what once was the village blacksmith shop.*

oil flows downhill by gravity through 2" pipe and empties into the truck at capacities up to 125 gpm. The last 50 gallons or so naturally is delivered at a slower rate, but, if need be, the tanks can be emptied almost dry without pumping.

This arrangement was installed at a minimum cost for parts and accessories and is ideal in operation. However, it is possible only because the land is contoured to permit the gravity flow. It is an unusual but effective system that could be duplicated only where topographical conditions are similar.

More expansion plans envision the installation in a similar way of a 30,000 gallon tank, which now is on order, to increase the amount of storage and lessen dependence on frequent over-the-road transporting. The increase in storage capacity is looking ahead to an expansion in gallonage, too, with the result that Fair and Swatos are making ready to purchase an additional truck. If the volume should reach such proportions before then that the one truck could not handle it, they will press the old Ford truck into emergency service or alternate with each other on day-night shifts as long as necessary.

The boys today can look back to the early days, when they frankly admit, "We would have done anything to make a buck," sigh a little with relief and regard the coming heating season with more confidence. In a few years they've built up a sizable oil gallonage, along with a few profitable sidelines, and have every reason to expect a continuing increase in their business.

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Farm buying Intentions surveyed in three States

RESULTS HAVE BEEN PUBLISHED of surveys of the 1951 buying intentions of farm families in Wisconsin, Illinois and Indiana. The survey in Wisconsin was undertaken by the *Wisconsin Agriculturist and Farmer,* projected to cover the 177,745 farms in the state; the *Prairie Farmer* conducted a similar survey of the 380,209 farms in Illinois and Indiana.

In Wisconsin 4,444 families indicated an intention to purchase an oilburner this year, 8,354 are going to buy basement furnaces, 1,955 plan to install coal stokers and 355 families say they will buy gasburners. Also, 2,844 oilfired water heaters will be purchased for home use and 2,488 oilfired water heaters for use in milk houses. A total of 5,866 families intend to purchase oilfired space heaters.

Illinois and Indiana farm families, in reply to questionnaires, said they would purchase 23,953 oilburners, 14,448 basement furnaces, 5,703 gasburners and 9,505 coal stokers. For use in their homes, they plan to acquire 3,802 oilfired water heaters and 1,901 oilfired units to provide hot water for milk house use. Oil space heaters are going to be bought by 20,911 families.

A consolidated tabulation of both surveys shows the following:

	Wisconsin	*Illinois and Indiana*
Water Heaters:		
House:		
Electricity ...	19,196	54,369
Oil	2,844	3,802
Gas	3,022	15,209
Coal	2,311	3,802
Milk House:		
Electricity ...	23,640	25,854
Oil	2,488	1,901
Gas	1,422	3,802
Coal	356	3,042
Space Heaters:		
Coal-wood	4,799	7,604
Electric	1,066	1,901
Oil	5,866	20,911
Gas	533	4,943
Basement Furnace.	8,354	14,448
Oilburner	4,444	23,953
Coal Stoker	1,955	9,505
Gasburner	355	5,703

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U. S. Department of Labor Fueloil Prices (May)

FIELD INVESTIGATORS for the Department of Labor monthly check prices of principal fuels in several cities in each section of the country. Getting retail quotations from various suppliers in each market, the prices are averaged and published. Those in the table that follow were taken May 15 (cents per gallon):

	Range	*No. 1*	*No. 2*	*No. 3*
Boston	14.73	14.57	12.50	..
Manchester	15.30	14.80	13.20	..
Portland, Me.	14.40	14.40	12.40	..
[3] Buffalo	14.95	..	13.74	13.74
[4] New York	..	..	12.75	..
Philadelphia	..	13.43	12.20	..
[1] Chicago	14.83	14.48	13.57	13.57
[4] Detroit	..	14.73	13.70	..
Milwaukee	..	14.78	13.84	13.72
[1] Kansas City	..	12.83	11.83	11.73
Minneapolis	14.97	14.73	13.68	13.73
[1] Baltimore	..	13.36	12.44	..
[1] Wash., D. C.	..	13.84	12.85	..
Jacksonville	..	14.87	13.60	..
Norfolk	..	13.60	12.20	12.20
Richmond	..	14.00	12.60	..
[2] Savannah	..	16.55	13.97	..
[5] New Orleans	..	14.33	12.77	12.77
Portland, Ore.	..	14.34	12.10	6.90
[6] San Francisco	..	13.87	11.54	6.85
[4] Seattle	..	15.41	13.20	7.11

[1] Prices include 2 percent tax.
[2] Inspection tax of one cent per gallon included on kerosene only.
[3] Prices include 1 percent tax.
[4] Prices include 3 percent tax.
[5] Prices include 3 percent tax on all fuels except gas; prices for kerosene and fueloil No. 1 also include one cent per gallon State health tax, and 1/32 of one cent per gallon State inspection tax.
[6] Prices include 3.5 percent tax on all fuels except gas.

Good Profits in Modernization

By guaranteeing oil Savings, this Works sells quite readily

by
Ralph L. Dennis*
and
I. Maynard Nelson*

FOR THE PROGRESSIVE oilburner dealer, the "Oilburner Modernization Program" presents a challenging and profitable field with an almost unlimited potential.

The entire program is based on the fact that the average existing gun type burner installation is not delivering, in conjunction with the furnace or boiler in which it is installed, a thermal efficiency as high as it should be.

Because of this general condition home owners are paying premiums to heat their homes and consequently they are ready and willing to be sold on a guaranteed program that will reduce their oil bills.

The Modernization Program consists of two necessary elements to make it successful. The first requirement is a good "expert" oilburner engineering department. By expert we mean that the man or men who head up this department must have a thorough knowledge of all the factors that contribute to the perfect oilburner installation.

What the Expert must know

They must qualify as experts and as such must have the following:

1. Reference books to check the proper firing rate of the boiler they are to fire and a satisfactory formula for arriving at the correct firing rates for furnaces. Too many existing installations are either underfired or overfired, both conditions resulting in oil waste.

2. A knowledge of proper combustion chamber design, and the importance of using insulating brick.

3. A recognition of the need of and how to properly baffle a boiler or furnace originally designed to burn coal.

4. A complete understanding of the importance of draft control.

5. The ability to make an accurate nozzle application test on any pressure atomizing burner to find the nozzle angle and type (hollow or solid) that mates best the air pattern of a particular burner. This requires a knowledge of the proper procedure, the correct use of CO_2, stack temperature and smoke testing instruments.

6. The engineering department must also be qualified to check the entire heating system and correct any faults that may exist. It is possible to be expert in the oilburner phase of this work but not to qualify in the checking of the heating system. In such cases a business arrangement should be made with some qualified heating expert who will handle this important part of the program.

Active sales Department needed

The second requirement of the modernization program is an active sales department.

The Modernization Package has got to be sold—it can only be done by telling the story of what your company proposes to do, to save the home owner oil, and the best way of doing this is by direct contact. This requires salesmen who will get their leads either by door to door canvassing or as a result of a preliminary direct mail approach to home owners now burning oil. Without a live active sales effort the Modernization Program will not be successful.

The sales approach is to home owners now burning oil (particularly with gun type burners) with an offer to have your company's expert engineering department check their present system to determine its efficiency at no charge or obligation to them. If a guaranteed saving of 15% or more cannot be effected, the customer will be so advised and congratulated on the condition of their system. If a 15% or greater saving can be made, which will be the case in 90% or more cases, the modernization program is sold.

The salesman must know his story. A properly presented story of what will be done to modernize the existing installation is one of the finest ever told and dealers who have proceeded with this program report an almost unbelievable percent of profitable sales.

A packaged burner Installation

What you are selling is a package of "expert" procedures that combined will obtain the peak efficiency possible from any oilburner and heating system combination. A good oilburner installation is a beautiful package and consists of the following:

1. Boiler or furnace will be carefully checked for the proper firing rate. (Proper sales story requires three minutes).

2. An insulating brick combustion chamber of the proper size and shape will be installed. (Important part of sales story five minutes).

3. If boiler or furnace was designed for coal a baffle will be installed to retard fast moving hot gases and direct them against the heat absorbing walls. (Sales story, three to five minutes).

4. A good draft control, that really holds the net draft on the boiler or furnace constant, will be installed. (Sales story five minutes).

5. A nozzle application test will be made by your engineering department to determine the best type of nozzle for their particular burner. (Sales story four minutes).

6. The customer's entire heating system will be checked by a capable engineer and changes recommended if necessary for most economical operation. (Sales story three minutes).

The total sales presentation is approximately 24 minutes.

A salesman should be equipped with a portfolio containing illustrations of each item that will be installed to complete the program. He must know completely the story that tells the reason for firing a boiler or furnace at the right rate, the true value of insulating brick combustion chambers, correctly sized and shaped, the story of the im-

*Dennis is manager, Oilheating Supplies Div., Boston Machine Works Co., Lynn, Mass., and Nelson is national field representative for that division. Nelson has directed numerous dealer meetings in the past few months in principal oilheating cities to outline the details and methods employed in a modernization program.

portance of baffling a boiler or furnace, the complete story of the importance of draft control, the improvement in efficiency when the right nozzle is selected to mate the air pattern of the owner's burner, and the reason for checking the entire heating system. One of the greatest sales points that a salesman will have will be his ability to sell his own company's engineering department, who because they are "expert" oilburner engineers will give the home owner a new installation of their present equipment that will make it perform at peak efficiency.

Making a heating unit Survey

The salesman will also have in his portfolio a sample of the survey sheet that will be used if the customer agrees to allow his system to be checked. This gives the customer a clear picture of what the procedure consists of and has proven to be very impressive.

A salesman properly trained to tell this story effectively and supported by an expert engineering department cannot fail to be successful in selling the modernization program.

Salesmen should make their contacts and arrange definite appointments for their engineering department to make surveys. After the survey sheet is completed the salesman can review the conclusions and recommendations with the engineering department, prepare his proposal for the work to be done and return well prepared to close the sale. It has been proven unsatisfactory to have salesmen make surveys, unless they qualify definitely as "experts" themselves from an oilburner engineering standpoint.

To put the Modernization Program into effect does not necessarily require a large organization. We know the program can be successful even with a one man organization if he qualifies as an oilburner expert, has the necessary sales ability, and actively goes after the business.

The Modernization Program should be sold at a profit. Current prices for the complete package are ranging between $100-$150. The entire program should be sold as a package with an overall price. You will not be selling just a chamber, a draft control, etc. but an overall job including expert engineering. Salesmen must be paid a generous commission to enthuse and encourage their important contribution to the program. Expert engineering is expensive. Therefore, these costs must go into the job. It will stand it and still present a good value to the customer. Some customers will save their investment within a year after work is done.

Many sales of new equipment will result from an active modernization program. Surveys will disclose the need of complete boiler or furnace replacements, improvements will be necessary in heating systems, all of which is additional business. What finer way of

HEATING UNIT SURVEY

Owner .....Residence .....Business Building .....

Address .....

Heating System

Type of Boiler—Steam....Gravity Hot Water....Forced Hot Water....Age....
Rating Standing Radiation

Manufacturer .....Model No. .....Steam ..... H.W. .....

Round Cast Iron ....Sectional Cast Iron ....Steel ....Proper Firing Rate ....
Total Actual Radiation Installed—(list on back of sheet)

Type of Furnace—Gravity ....Forced ....Cast Iron ....Steel ....Age ....

Manufacturer.....Model No.....Grate Dia.....Proper Firing Rate....

Number of rooms heated .....No. rooms unheated .....

Does customer say that present system heats home adequate, Yes .....No .....
If NO, is reason apparent (if so state reason) or should system be checked
.....

Condition of Smoke Stack .....

Condition of Boiler or Furnace .....

BURNER

Kind of burner? Pressure atomizing .....Rotary .....Vaporizing .....

Manufactured by .....

Model No. and Name .....

Is burner in good running order as far as controls etc. are concerned—Yes... No...

Are there any controls or parts of burner that should be replaced? If so what?
.....

What nozzle is proper for the air pattern of this burner .....

Is present combustion chamber made of hard refractory or insulating brick? ....
.....

Is it square? If so, give dimensions, length .....width .....height .....

Is it round or pear shape? If so, give dimensions, diameter .....height.....

Is a baffle of any kind installed? If so what kind .....

Draft Control? Yes ....No ....Name .....Condition—Good ....Bad ....

Cartridge filter in oil line? Yes ....No ....If yes, at tank or burner .....

Approximate cost of fuel, 12 month period .....

Preliminary Survey by .....Date .....

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Survey sheet, *which is completed by the engineering department, after salesman has arranged for an appointment to do so. The salesman then goes over the results with the engineering department, prepares his proposal of work to be done and returns to complete the sale.*

ACTUAL TEST AND RESULTS

Before	*After*
Draft Reading Stack	Draft Reading Stack .....
Draft Reading Over Fire	Draft Reading Over Fire .....
Stack Temperature	Stack Temperature .....
Smoke Test	Smoke Test .....
CO_2 Reading	CO_2 Reading .....
Estimated CO_2 if No. 2 Smoke Possible	
Thermal Efficiency Heater	Thermal Efficiency Heater .....
Nozzle Size .....Make	Nozzle Size .....Make .....
Nozzle Angle....Solid ....Hollow	Nozzle Angle ....Solid ....Hollow ....
Test Completed by	Date .....
From office of	at .....

Reverse side *of the survey sheet, which records actual results of tests made before and after modernization work has been performed.*

uncovering potential business could be conceived?

Oil companies, interested in increasing their oil gallonage are finding the Modernization Program a perfect means to this end. It is most natural that a customer would be justified in placing their oil business with a concern responsible for saving them a substantial amount of their fuel costs.

We consider it important that arrangements be made with the customer to take over permanently their service requirements once a modernization job has been done on their system. This will prevent others from upsetting the careful settings and adjustments that your engineering department has made.

We believe that the Modernization Program offers any company engaged in the sale of oilburners to the public a great opportunity for promoting a profitable business and at the same time taking a definite step towards preserving the reputation of oil as a satisfactory and economical means of home heating. It is good for the industry as a whole, the manufacturer of quality oil heating supplies, the distributor, the dealer, the salesman and the home owner. It will save the latter many untaxable dollars.

We are convinced that oil is the finest, the most safe, and economical fuel for home heating known today, providing installations are properly made on an "expert" basis. On the other hand other types of fuel can seriously and successfully challenge oilheating if we continue to ignore our carelessly made existing and new installations. Thousands of present oil users will be converted to other fuel if oilburning costs are excessive due to careless or inefficient installation. We need more "experts" in the oilburner installation and service field. We need more good reliable concerns who will recognize the need for and adopt the modernization program for profits and for the preservation of the reputation of oilheating.

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IOMA cites Improvement in distillate oil Stocks

IN ITS JULY 12 EDITION of "*The Digest,*" the Independent Oil Men's Association of New England, Boston 16, Mass., quotes statistics to demonstrate the considerable rise during the six weeks period from May 16 through June 20 in distillate fueloil production, movement and stocks in District 1 and 3 (East and Gulf Coasts).

The rate of production increased to a total of 31,398,000 barrels, 63% over 1949 and 29% more than 1950; movement of product into market was stepped up to 22,736,000 barrels, 60% greater than 1949 and 35% more than 1950; stocks at refineries and terminals increased to a total of 34,085,000, almost equal to the high level of 38,259,000 barrels stored during 1949 and 6,541,000 barrels, or 23.3%, above 1950 totals.

"Why," asks "*The Digest,*" "in the face of 29% more production, 35% increase in the movement of product from refiner to market and 23% greater stocks in refiner's reserves, is the independent distributor suddenly beset with allotment policies that contradict the satisfactory supply situation which the current operations of the industry seem to promise? Why this current conflict between major company production policies on the one hand and their marketing policies on the other hand?"

Joseph B. Wells, executive director of IOMA, feels that an answer to these questions is in order and that the New England independent distributors should be told if the section faces a shortage of product and why and what steps are being taken to alleviate the condition. He advises the distributors to ask their suppliers to do more than define the term of their allotment policies, but rather to spell out the "whys and wherefores that have prompted these restrictive conditions which fail to give recognition to the potential 20% increase in demand which New England faces next winter."

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R. W. Allen has been appointed as district sales manager of Mack Motor Truck Corporation's St. Louis branch. Mr. Allen, who joined Mack in 1926 as a payroll clerk in its Detroit office, subsequently became a salesman in that territory and later was appointed as sales manager in the company's Twin Cities branch. For the last ten years Mr. Allen has been manager of the Houston branch.

Chester B. Lang, a vice-president of the General Electric Co., for the past ten years, has been placed in charge of Public Relations. He will conduct his new activities from the company's executive offices in New York. For a number of years he directed this activity for the G-E apparatus organization and managed its advertising and promotional broadcasting.

Unit Heaters Stay cold

fueloil & oil heat
Short Short Article
on Burner Service

NEEDING ADVICE last January, this service man drove 250 miles to the factory which makes the burners, furnaces, and boilers sold by the oil company he works for. Latching on to a heating engineer at the factory, he made Diag. 1 and told his troubles.

"We sold this oil customer a big oil boiler and a heating job for his new building," he said, "This includes five unit heaters, though here I show three, and it totals 2,700 sq. ft. EDR.

"As the heating job was too big for our own men, we subcontracted it to a heating man. He arranged all details."

Questioning the service man, the factory engineer learned that the unit heaters at A, B, and C in Diag. 1 blew cold air most the time and never delivered half enough heat for their sizes. The service man said the 3½" steam line from D to A, 160 ft. long, must be too small. How, he asked, can a 3½" pipe give enough steam for five unit heaters, each having a 2" steam inlet connection?

After checking this, however, the engineer said the line was large enough. Then he quickly put his finger on what he said was the real trouble.

"You've got a thermostatic trap, like the trap properly used in a two-pipe system, right at each unit heater," he said, pointing to trap F in Diag. 1. "There's no cooling leg between each unit heater and its trap, therefore the lowest coils of the unit heaters tend to fill up with cold water.

"Aside from that, it's all wrong to install thermostatic traps this way in a one-pipe steam system! The automatic air vent at G can't let air out of the dry return line when you've got five pounds pressure on the boiler, because boiler water is pushed up to it by boiler pressure when all the traps at the unit heaters are closed.

The service man said that vent G was a float type and gave trouble banging, squirting water, and venting very little air. He said he was keeping up ten pounds boiler pressure to force a little heat from the unit heaters.

Making Diag. 2, the engineer chuckled, "Use this scheme to fill every unit heater element with steam and get 110% rated output from every unit heater. This layout even drains the steam main of condensate, letting it pour through the unit heaters harmlessly. It keeps live steam at the unit heater output connections, at points A, B, and C. At each point there's a quick vent mounted on the end of a three-foot length of 2" pipe. After the 2" outlet of each unit heater is a 15" water leg made of 1¼" pipe. This prevents a unit heater from pouring live steam into the dry return line, and air-binding or water-binding another unit heater by putting steam pressure on its output connection.

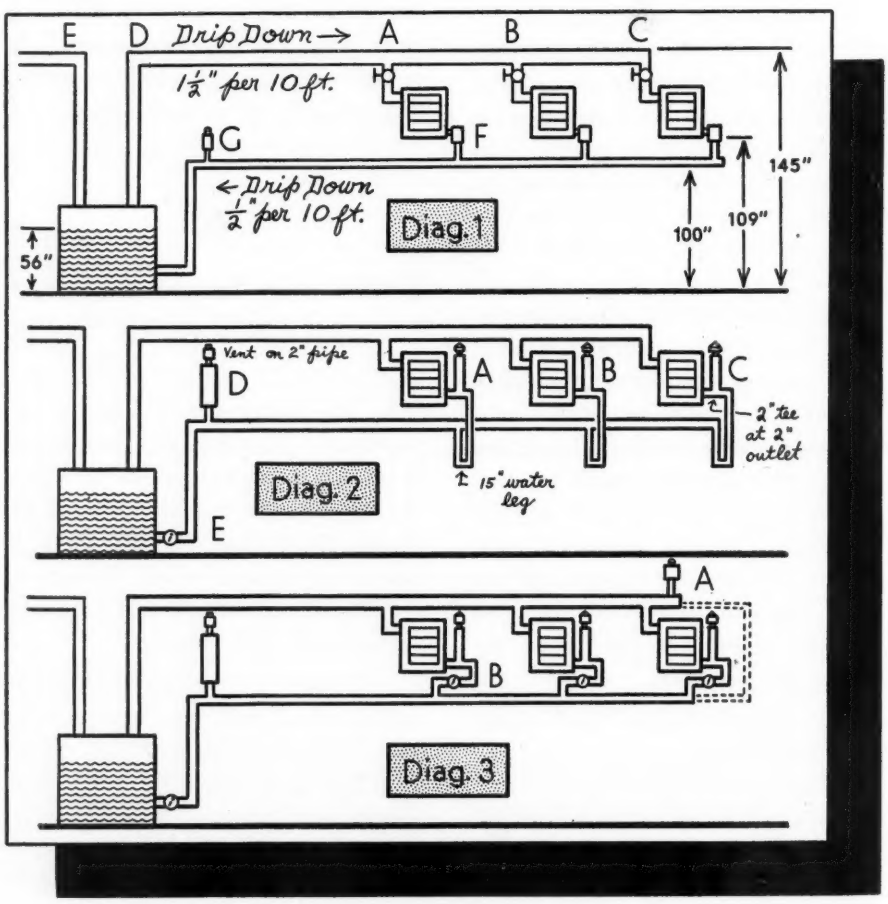
"I like the check valve at E, though it doesn't serve any function once the entire system is full of steam.

"Start each unit heater blower motor by a reverse-acting temperature control located at the output connection of the unit heater. The blower can run, then, when a unit heater element is full of steam. Don't use pressure controls to start the blowers."

The service man telephoned the factory in a week, reporting the scheme of Diag. 2 was working beautifully. Two pounds boiler pressure filled every unit heater completely with steam so that even its outlet piping was at steam temperature, he said.

Later the factory engineer gave the service man Diag. 3, in which each unit heater has a check valve at its outlet instead of a loop or water seal. The swing check valve at B might be next to the dry return line, not over it. The main is vented. Dotted lines suggest using a good way to drain condensate.

"Many men like the check valves because using them makes a simpler, better looking, less expensive job," explained the factory engineer. "Maybe I'm odd, but I prefer the water seal idea of Diag. 2. It hasn't the moving parts of check valves, so hasn't any chances of check valves sticking open or closed. Also, it sure provides full heat output from the unit heater elements! That's why I use the water seal idea where I want 110% results!"



Last Call for the

$1000 USEFUL IDEAS CONTEST

AUGUST 31 is the deadline for submitting your "Useful Idea" in this our Second Annual Contest. The $1,000 in prizes—$125 for the best idea in each of four categories, $75 for the second best and $50 for third prize—are to be awarded in these categories:

oilburner salesmen — fueloil truck drivers
oilburner servicemen — office employees

For example, last year a degree-day dispatcher won first prize in the office employees group for a method of correcting degree-day loads for sun and wind effect by using recording clocks to determine running time of burners in three homes, checking it against predetermined "K" factors and making plus or minus adjustments, as indicated. A bookkeeper was rewarded for a system she developed, using numbered tickets to keep closer tabs on receipts, dispersals and cash involved on every gallon handled by an average-sized fueloil dealer.

Then, a burner serviceman described how he had used wintergreen to prove to a customer that the oil odor complaints he made about his warm air system were caused by a leaky furnace—and won a prize. And besides the 12 major prize winners, 20 other contestants were paid a minimum of $5 for their "Useful Ideas" that they submitted.

So, if you're using a novel—or even ordinary—method to overcome some problem in your everyday work, send it along. The Ideas are judged solely on the basis of originality, practicability and effectiveness and you may be surprised to learn that some of your everyday procedures are "Useful Ideas" to others in the industry and worth real money to you.

THESE ARE THE RULES • CLOSES AUGUST 31, 1951

JUST about every original, useful idea submitted will win some kind of award. There will be four First Prizes of $125 for the most useful idea submitted by each of the four kinds of employees listed. Then there will be four second prizes of $75 each and four third prizes of $50 each. All the winning ideas will be published in FUELOIL & OIL HEAT, identified with the winner's name. BUT, in addition to the 12 prize awards determined by the judges, there will be other entries that have worthwhile suggestions that would help the oilheating industry. The editor will select a number of these and when they appear in the magazine the author will be paid at the rate of 3¢ a word (minimum of $5.00).

1. The idea that you think would be useful to other oilheating men may be one of your own experiences or anything unique that you have learned.
2. To be eligible you must be an employee, not the boss, and you must be working in some part of the oilheating industry.
3. Write your idea in enough detail to make it clear to every one in any number of words up to 1,000. If a picture or a rough sketch or drawing would help make your points clear, include them. DON'T WORRY about your ability to write well. It will be the idea itself that will get attention if it is useful.
4. Your suggestion should be typewritten if possible, on one side of the sheets. Do not put your name on any of the sheets, as the judges must not know who sent in the idea. All entries will simply be numbered. So write your name and address on a separate slip of paper and clip it to your story. Thus winners can later be identified by the editor after the judges announce their choices. Entrants may send in as many suggestions as they want to, but they must be written separately.
5. State whether your entry is sent by an oilburner salesman, burner service man, fueloil truck driver or office employee, since the prizes will be awarded to those four separate classifications. Office employees include dispatchers, degree-day operators, credit and collection workers, and others.
6. The Contest closes August 31, 1951, and winners will be announced in the October issue of FUELOIL & OIL HEAT. All opinions of the judges will be final, and no entries will be returned to the senders.
7. To be eligible entries must be postmarked not later than midnight August 31, 1951.

THE JUDGES

The three judges are men of responsibility in the oilheating industry today . . . men who started at the bottom and came up in their organizations. They have all had experience in about every phase of oilheating dealers organizations and know a good suggestion when they see it. The judges again will be:

Tom Carson, manager oilheating division, Sherwood Bros. Inc., Baltimore, Md.
George Clement, general manager, Modern Heat & Fuel Co., Philadelphia, Pa.
Herbert Spade, manager oilheating division, E. Robison, Inc., Hartsdale, N. Y.

Send all entries to Editor, FUELOIL & OIL HEAT
232 Madison Ave., New York 16, N. Y.

Oilheating Show scheduled for Philadelphia in April

AMONG OTHER DECISIONS made at the OHI Directors' meeting July 10 was the final determination that the oilheating industry will have another exposition at the Commercial Museum in Philadelphia lasting five days, April 14-18, 1952. It had been planned to have these shows only every second year, alternating with the general heating show sponsored by ASH&VE, and that will be the pattern in future, after next year. In other words, there will be no OHI show in 1953.

The Directors' meeting was held at Wentworth-by-the-Sea, Portsmouth, New Hampshire, with 40 board members and industry guests attending.

Crawford opens Meeting

T. A. Crawford, Institute president, in opening the meeting, discussed the temporary slump in consumer buying largely as a result of excessive buying last fall when people were afraid of shortages. Incomes are still high, he pointed out . . . in fact they continue to set new peaks with each survey. Savings are high and still growing, he explained, and there is every indication that increasing inflation will move the dollars into products such as ours. The real shortage today, in his opinion, is in sales effort, not in shortage of buyers as such.

Ralph Becker, Institute managing director, submitted a treasurer's report showing a $76,000 cash balance on June 30 and a budget for the remainder of the fiscal year showing a satisfactory surplus at its close. He then reviewed the oilheating year to date, finding sales 8% off in the first five months, with dealers finding materials readily available for improvement as the year progresses. He pointed out some of the Institute's activities in assisting NPA in Washington, supplying statistical data in collaboration with FUELOIL & OIL HEAT. He mentioned that his office has issued 17 industry bulletins since the fiscal year started in the spring. The consensus of the group was that these had been very useful.

At the request of Harold Wilkinson, chairman of the membership committee, Becker announced that the staff will prepare a booklet showing all Institute members and their business connections. Wilkinson then reported that since the last meeting one new chapter has been added to the Distribution Div., at Norfolk, Va., with 54 members. He also listed one new member of the Manufacturing Div., Anchor Division, Stratton & Terstegge Co., New Albany, Ind. Then there are two new members of the Accessory Div., Babcock & Wilcox Tube Co., Alliance, Ohio, and Wm. Steinen Mfg. Co., Newark, N. J.

Dick Bohn, chairman of the Constitution Committee, reported that at the Institute's interim election the membership had authorized an increase in number of directors to 49, of which 25 are to be oilburner manufacturers, 12 accessory manufacturers and 12 will be from the Distribution Div. The only burner manufacturer added to the board at this meeting was M. J. Donahue, Anchor Post Products, Inc., Baltimore.

Hastings heads Accessory Division

P. K. Addams reported for Don Leslie, who has resigned from the chairmanship of the Accessory Div. to take a Government appointment. He explained that Clark Hastings of Rochester is the new chairman of the Division and Bruce Olsen of Rockford is vice-chairman. Four additional members for the Institute's board from the Accessory Div. are Tom Byrd, Lau Blower Co., E. J. Gossett, Bell & Gossett Co., E. N. McDonnell, McDonnell & Miller, Inc., and Stanley Czarnecki, Eddington Metal Specialty Co.

Hollis Albert, chairman of the Distribution Div., first reported on new members for the Institute's board to be added in line with the Constitutional change. Carl Jonswold of Chicago replaces Roy Thompson, who has resigned because of the pressure of other commitments. Additional directors are yet to be announced, but they will be from chapters located in Washington, D. C., Milwaukee, Richmond, Cleveland and Rochester.

Albert urged manufacturers to instruct their field men to attend meetings of the local city chapters. Becker, for the Institute, said that this could be expedited if the chapters would announce their meetings well in advance so that the staff could circulate the information through manufacturing members to their field forces. This is to be done. Albert also asked the manufacturers to help get more membership for the Distribution Div. in their own dealerships . . . possibly through showing them the financial advantages of participating in the Division's group insurance program.

Public relations Plan submitted

Lon Casler, chairman of the Public Relations Committee, submitted a program in considerable detail. He first recognized that public relations activities should be directed toward five groups . . . customers, the petroleum industry, Government, competitive fuels and our own industry personnel nine regular activities for the committo enlist their full cooperation.

Then he suggested nine regular activities for the committee to undertake: (1) Industry research, with a monthly bulletin; (2) Monthly press releases; (3) Coordination with the Oil Industry Information Committee of API; (4) Gather and disseminate all national and trade news; (5) Issue a monthly chapter bulletin for the Distribution Div.; (6) Promote industry themes for use in the advertising of member companies; (7) Develop a preventive service program to help dealers insure peak performance to consumers; (8) Have a speakers bureau, write their speeches, agree on themes; (9) Produce all types of Institute literature.

Cy Burg, chairman of the Commercial and Industrial Committee, described the activities of the committee's first meeting in New York in June, invited all manufacturers who have any interest in that direction to actively participate in future sessions. This invitation included any accessory manufacturers who have products for the heavy oil field. He then announced that

(*Continues on page* 76)

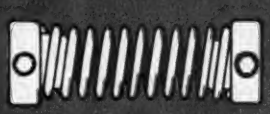
HC

MORE Taco Circulators . . .

PATENTED ROTARY SEALS

The patented stainless steel and carbon rotary seals make for trouble free operation.

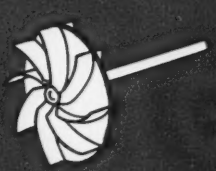
STRONG FLEXIBLE DRIVE SPRING



Strong flexible drive spring coupling isolates impeller from motor for quiet vibrationless operation.

CAST BRONZE BALANCED IMPELLER

Casting the impeller in one piece makes certain of long uninterrupted service.



HARDENED AND GROUND STAINLESS STEEL SHAFT

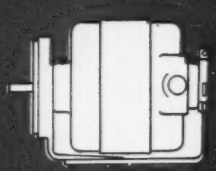
Made to a plus tolerance of zero and minus tolerance of .0004. Then superfinished for long life smooth operation.

POROUS BRONZE OILITE BEARING AND LARGE OIL RESERVOIR PACKED WITH WOOL WASTE

Long oilite porous bronze bearing, surrounded by ample oil reservoir, lubricates impeller shaft while keeping it in perfect alignment.

MOTOR WITH BILTIN OVERLOAD PROTECTION MOUNTED IN RUBBER

Special balanced motor with biltin automatic overload protection, mounted in rubber, for quiet operation.



YOU CAN'T BEAT TACO'S QUALITY STORY

Taco circulators are made from the best that money can buy.

Better Heating-Better with Taco

TACO HEATERS, INCORPORATED 137 South St., Providence 3, R. I.

OHI Directors Meet

(Begins on page 72)

the next meeting of that committee will be in New York September 11.

Henry Brundage, vice-chairman of the Planning Committee, reported for that group in the absence of George Hochstein, chairman. He announced the committee membership under the new regime, and also explained that the group had been split into Eastern and Western segments to facilitate better meetings.

The Western membership, directly under Hochstein, lists these individuals: J. W. Owens, Wm. F. Schierholz, P. M. Stephenson, E. J. Gossett, L. S. Redford, Sheldon Coleman and Robert Johnston. The Eastern members, working with Brundage, are Joe Collins, H. S. Beagle, Clark Hastings, Russell M. Cook and Stanley Czarnecki.

Reporting for the Traffic Div., chairman C. F. Kirwan mentioned that since 1942 the freight rates on oilburners have been raised 101% and that rate bodies are now trying to raise them an additional 10% to 15%. Stokers, he pointed out, are now favored over oilburners to the extent of a 22½% freight advantage. Committee members have been active at all important rate making cases since the group was set up a year ago, and have helped to prevent further unjust discrimination.

Ted Kaufman of the OHI staff reported for the Engineering Committee in the absence of chairman Nat Hunter. He mentioned these current activities of the committee; (1) Working with the National Bureau of Standards on a revision of CS-75 and the fact that final action on this is awaiting some agreement on the point of radio interference elimination; (2) Studying a smoke unit; (3) Asking the American Society for Testing Materials to appoint an OHI member to its Technical Comm. E of Subcommittee D2 on fueloil specifications; (4) Working with Underwriters Lab. on tentative standards for oilfired units; Published the new Handbook on May 25, with much favorable comment and $5,000 in sales to date.

The next meeting of the Board of Directors will be at the Greenbrier, White Sulphur Springs, W. Va., on October 9.

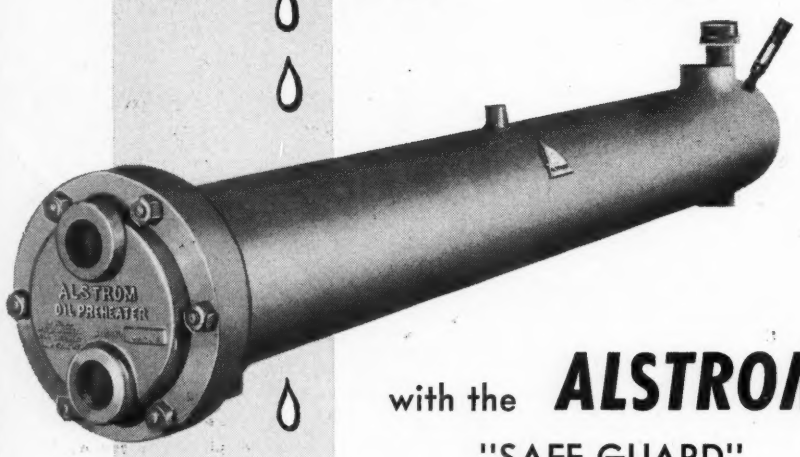
❖

George A. LeFevre and *William O. Ellwood* have been added in the capacity of field representatives to the sales staff of the Temperature Controls division, Perfex Corp., Milwaukee, Wisc. Mr. LeFevre has been appointed as district representative for the New

LeFevre Ellwood

England and Middle Atlantic states, while Mr. Ellwood will serve as district representative in the Buffalo area. The background of both men includes recent experience in the sales and service of control devices.

GUARD *Against Leaking Oil Tubes End* CONTAMINATING OF BOILERS AND HEATING SYSTEMS



with the **ALSTROM**
"SAFE GUARD"
OIL PREHEATER

- **completely "fuel-proof!"**
- **really heats oil!**

This "Safe Guard" Double Transfer Unit gives uniform heating at correct temperatures, with maximum efficiency and provides absolute protection.

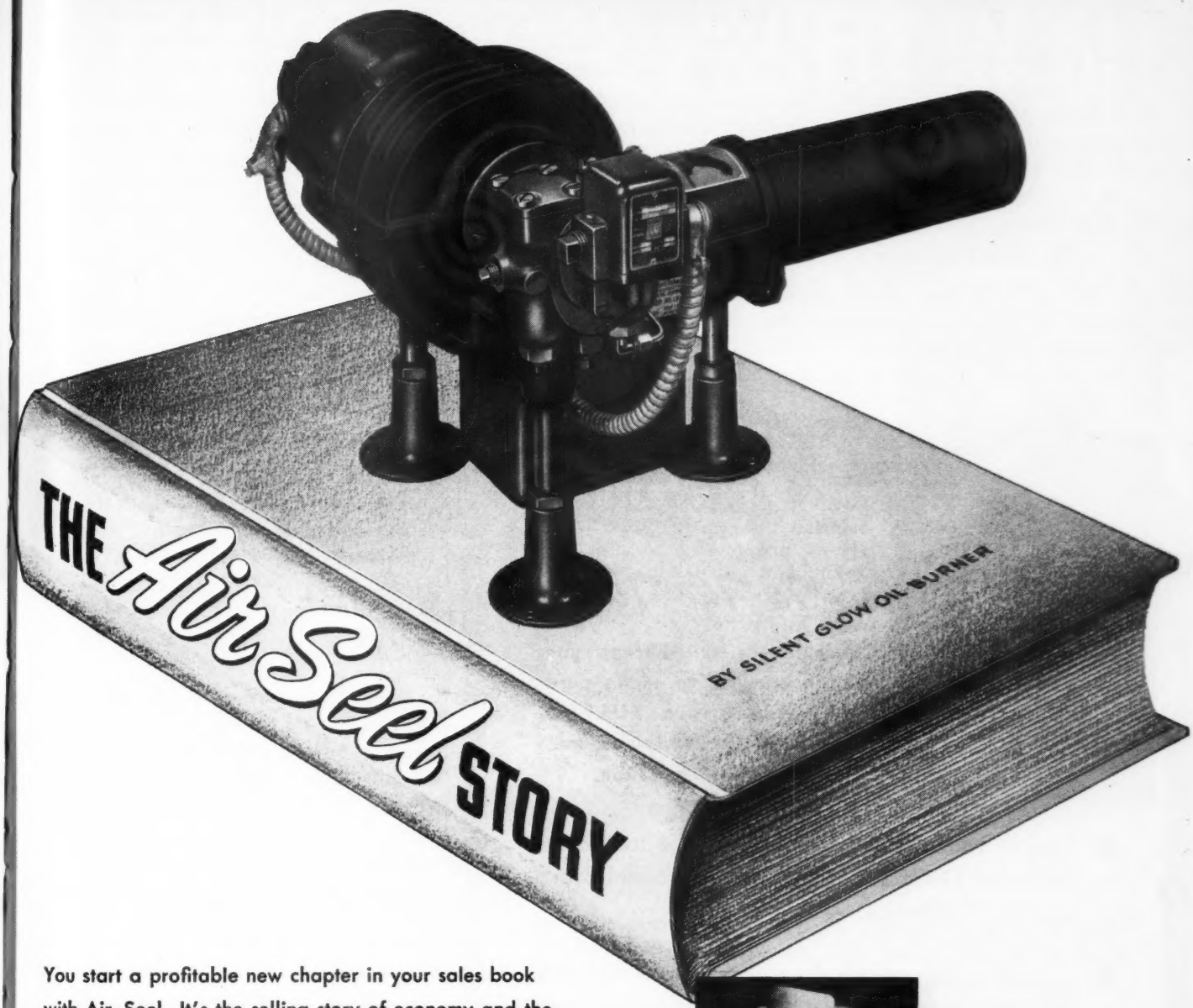
- compact • ruggedly constructed • beautiful finish
- triple tested • Visual Indicator, standard on all models

"Safe Guard" Oil Preheaters are available for both: below-water-line and Vacuumatic installations, in a full range of sizes.

THE ALSTROM CORPORATION
790 East 176 Street • Bronx 60, N. Y.

Manufacturers of: Vacuumatic, heavy duty submerged coils, oil preheaters, counter-flow tankless generators.

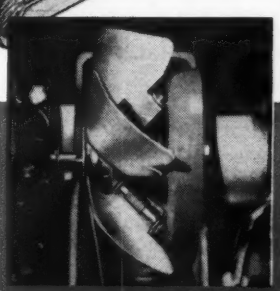
YOUR *BEST* SELLER



You start a profitable new chapter in your sales book with Air-Seel. It's the selling story of economy and the only oil burner that *conserves* the heat it makes . . . and there's no mystery about the savings customers get.

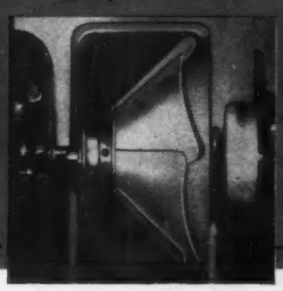
Here's how it works. When the Air-Seel stops, the blades of its unique, patented fan automatically fold flat against each other. Heat-wasting cold air — which usually rushes in through ordinary oil burners' intake to cool the heating system — is shut out by the Air-Seel fan. At the same time, valuable heat is sealed in . . . saving fuel and fuel-dollars, too. Right there you have an easy-to-tell . . . easy-to-sell sales approach, that's even easier to prove.

Let the Air-Seel oil burner show you the way to bigger sales and profits. This coupon will bring the interesting facts to help you start . . . right now.



Air-Seel Fan in "on" position. Drawing in just the right amount of air for economical operation.

Air-Seel stops . . . and fan blades fold flat, locking out heat-wasting cold air . . . sealing in paid-for heat.



Mail coupon today!

To: THE SILENT GLOW OIL BURNER CORP

850 Windsor Street, Hartford 5, Connecticut
1500 So. Western Ave., Chicago 8, Illinois

Rush the facts on Air-Seel to me . . . today.

Name: _____

Company: _____

Street & No.: _____

City: _____ *State:* _____

Those Who Know Choose SILENT GLOW OIL BURNERS

Industry Groups

Activities of local and national industry associations are reported monthly in this department. Secretaries are invited to send reports of their Group's activities to reach the editor by the 18th.

Distribution Division offers 1952 Calendar

PRODUCTION of a 1952 industry calendar is being undertaken by the Distribution Division, Oil-Heat Institute of America, Inc., New York 16, N. Y.

It will be the first of its kind specifically designed for the fueloil and oilburner industry and will include subject matter covering 12 topics. These have been selected for their effectiveness in selling the customer every day on the many advantages of automatic oil heat.

The calendar will be lithographed in 3 colors, printed on 6 pages, which are reversed for use during the last half of the year. Cost to Institute members, depending upon quantities ordered, will run from 22 cents to as little as 16 cents each. Prices include individual imprint and enclosure envelope.

Hollis Albert, chairman of the Distribution Division, in announcing the availability of the calendars said that many orders already have been received from Division members and also from oilburner and accessory manufacturers members of the Institute.

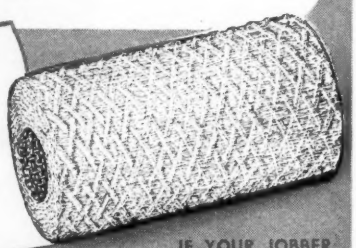
Orders should be received at OHI headquarters, 6 East 39th St., New York, on or about August 15 to insure delivery of finished calendars in time for distribution to customers.

Fulflo FILTERS
REG. U.S. PAT. OFF.

Now Is The Time!

- **Check every Oil Burner you sell or service to make sure every one has a FULFLO Filter with a newly-renewed HONEYCOMB Filter Tube.**
- Check your stock of FULFLO Filters and HONEYCOMB FILTER TUBES . . . and order *now* for Fall business.
- A little later everybody will be clamoring for shipment at once and late orders may be delayed . . . don't lose business for lack of stock.
- FULFLO Filters lead all others in sales because they lead in performance . . . dealers everywhere have found them the most effective for preventing fouled points, clogged nozzles, scored pumps, stuck valves and all service troubles arising from minute impurities in heating oil.

STOP COSTLY SERVICE CALLS!
ORDER YOUR
FULFLO FILTERS FOR FALL TODAY.
STOCK PLENTY OF
HONEYCOMB FILTER TUBES.



IF YOUR JOBBER CAN'T SUPPLY YOU WRITE OR WIRE US

COMMERCIAL FILTERS CORPORATION
BOSTON 27, MASSACHUSETTS

Gas Competition discussed by O.H.I. of New England

A SERIES of industry meetings to discuss means of meeting new and future gasheating competition in the Connecticut and western Massachusetts area have been held by the Oil Heat Institute of New England, Boston 15, Mass.

Open to all members of the industry, those areas for which natural gas supply by the Northwestern Gas Transmission Co. is projected are the principal concern of the New England group. Luncheon meetings were held in Derby and Torrington, Conn. and North Adams, Mass. Evening meetings were held in Wallingford and New Britain, Conn. and Springfield, Mass.

These meetings are the first of a series to be held in the affected areas and described the operation of a Plan that is set up at local levels to combat gas competition. It is supported by contributions from oilburner and fueloil dealers in each area.

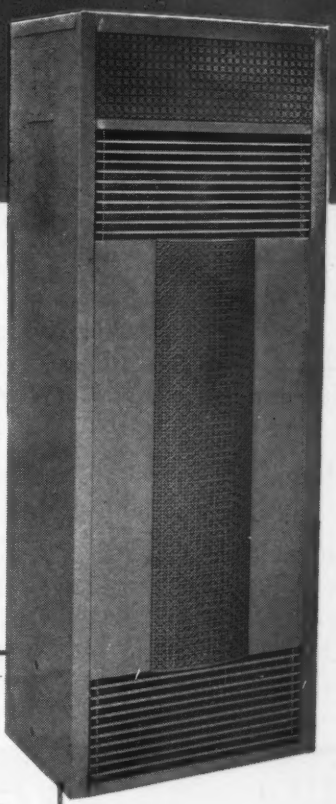
Washington, D. C. Survey shows Trend of Sales

INITIAL RETURNS from the sales trends survey being conducted by the Oil Heat Institute of Greater Washington, Washington, D. C., as announced in the July issue, indicate that during 1950 712 oil customers converted to gas and that 215 have converted in the first five months of this year.

The average of the sales figures submitted by reporting dealers show that for the first five months this year oilburner sales in the area are down 21.8% and replacement sales have in-

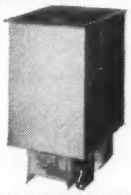
POCKET MORE PROFIT IN '51!

Sell H.C. Little Oil Furnaces that need no critical duct metal!

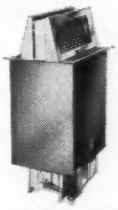


NO DUCT H.C. Little OIL FLOOR FURNACES

Automatic, floor-flush oil furnaces that produce an unusually large volume of warm air, and distribute it uniformly throughout the house. Two register styles with narrow-mesh steel grilles that give extra strong support. Absolutely silent operation!



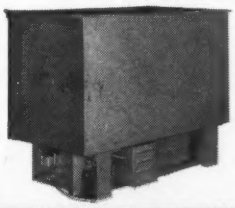
STANDARD REGISTER INSTALLATION—Two sizes: 50,000 and 75,000 BTU PER HOUR HEAT OUTPUT



DUAL REGISTER INSTALLATION—Two sizes: 55,000 and 80,000 BTU PER HOUR HEAT OUTPUT

NO DUCT H.C. Little SHALLOW OIL FLOOR FURNACE

Needs no basement or pit! Specially made for homes where floor of house is unusually close to grade.

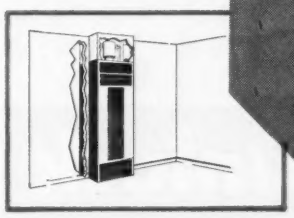


50,000 BTU PER HOUR HEAT OUTPUT

NO DUCT H.C. Little OIL WALL FURNACES

Ideal for homes without basement or those built on concrete slab. Installed in partition wall and can be set flush to chimney flue. Conserves floor space, permits wall-to-wall carpeting.

65,000 BTU PER HOUR HEAT OUTPUT
Smaller model available with
45,000 BTU PER HOUR HEAT OUTPUT



NO-DUCT H. C. LITTLE OIL FURNACES HAVE THE ONLY VAPORIZING BURNER WITH LOW-VOLTAGE ELECTRIC IGNITION THAT *lights itself!*

- **Fully Automatic—No Pilot Light to Waste Fuel!**
- **Burn Low-Cost Furnace Oils—Including Catalytic Oil!**
- **Silent Operation—No Moving Parts to Wear or Make Noise!**
- **Easy Installation—No Heating Ducts Needed!**

These H. C. Little Oil Furnaces are easily installed in a fraction of the time needed for other heating equipment.

and many more exclusive H. C. Little features!

Eliminate duct metal problems—make more furnace sales this year! Rush coupon today for full details about H. C. Little automatic NO-DUCT oil furnaces. These are the oil furnaces specially designed for small homes—no sheet metal ducts needed—no installation difficulties!

FACTORY REPRESENTATIVES

Aurora, Ill.	Detroit Lakes, Minn.	Reno, Nev.
Baltimore, Md.	Fayetteville, N. Car.	St. Louis, Mo.
Belmont, Mass.	Newark, N.J.	St. Petersburg, Fla.
Boise, Idaho	Portland, Ore.	Salt Lake City, Utah
Columbus, Ga.	Prescott, Ariz.	Seattle, Wash.

H.C. Little BURNER COMPANY, INC.
SAN RAFAEL, CALIF. Dept. 8

Yes, I want to pocket more profit this year!

Send me complete details about selling:

☐ H. C. Little Oil Wall Furnaces ☐ H. C. Little Oil Floor Furnaces

_____

_____

_____

creased 46.1%. The majority of dealers reported no installations in new construction through May of this year. On the plus side, though, the returns showed that the average dealer sold 18% more fueloil in 1950, compared with 1949.

Milwaukee Oil Men's Club hold Stag Picnic

THE MILWAUKEE Oil Men's Club held its third annual outing at the Chenauqua country club on Thursday, July 24. Joseph N. Hunt served as the picnic chairman, assisted by Joe Holtz, Wally F. Benz and Don Gallagher of the picnic committee. The outing included steak dinners, with green fees included in the price of admission.

Indiana Sheet Metal Group holds Vincennes Meeting

A DISTRICT MEETING at Vincennes, Ind. on July 13 was held by the Sheet Metal and Warm Air Heating Contractors Association of Indiana, Inc., Terre Haute, Ind. President Lawrence D. O'Donnell, Sr. appointed a committee of W. T. Teschner, Clarence Watson and Holly Kilfoil of Vincennes to make arrangements for the gathering, held at the Jewel Cafe. Featured speaker was J. W. Ridgway, Frankfort, Ind., who talked about "Crawl Space Heating in the Basementless Home," including a discussion of the preparation of the crawl space, simplified air distribution system, location of supply and return openings.

H. W. Meggs presented the program of the Association's Department of Public Information for preparing a talk on "Indoor Comfort," to be pre-

"The battle of the fuels" *in Baltimore becomes a "battle of the billboards!" During the month of June these 24-sheets side-by-side silently boomed forth the merits of gas heat and oil heat. Hollis Albert, president of the Oil-Heat Association of Maryland, Inc., remarked that business makes strange bedfellows, but, "At least," he said, "it's obvious which message is 'right'."*

Unlock the Profits!
THEY'RE WAITING IN EVERY GENERAL FUEL OIL FILTER

GENERAL FILTERS Says:

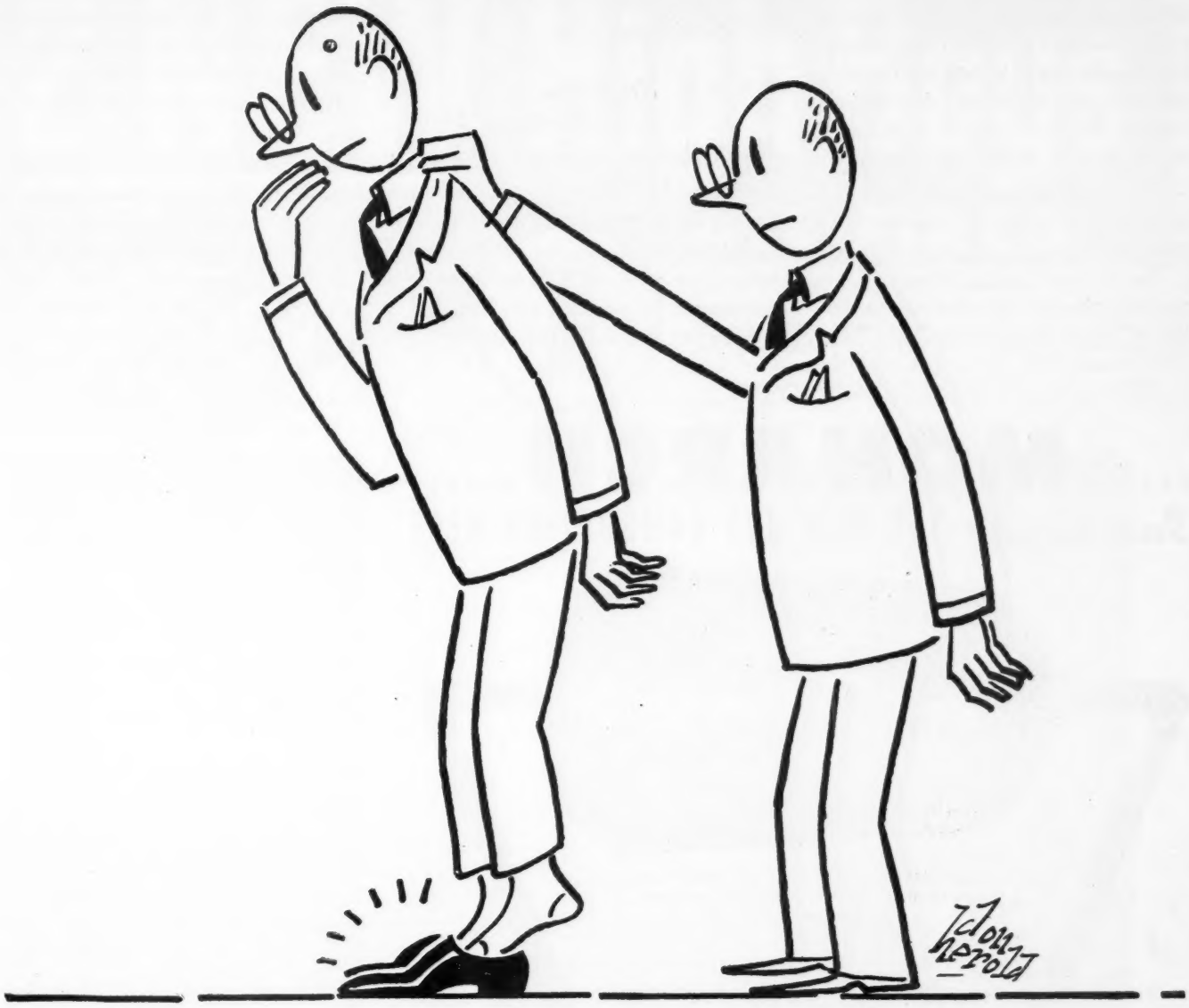
Install a Genuine General Filters Replacement Cartridge For Your General Customers at Least Once Each Season

Remember! The few minutes you spend installing a new cartridge during a service call means profit for you—and these advantages for your customers:

- CLOGGED NOZZLES ELIMINATED
- ALL-WOOL CARTRIDGE
- FINE FILTRATION
- CONDENSATION MOISTURE REMOVED
- WIRE MESH STRAINER INSIDE WOOL GIVES DOUBLE PROTECTION

GENERAL FILTERS now distributes CLEAN RIGHT SOOT REMOVER— Certain-safe for oil, gas, or coal heating plants. Tell your customers about the NEW way to heating efficiency.

GENERAL FILTERS INCORPORATED
GENERAL FUEL OIL FILTERS
12890 WESTWOOD AVE. DETROIT 23, MICHIGAN
CANADIAN FACTORY BRANCH: CANADIAN GENERAL FILTERS, LTD. 2679 DANFORTH AVE., TORONTO 13, ONTARIO



Put yourself in your prospect's shoes...

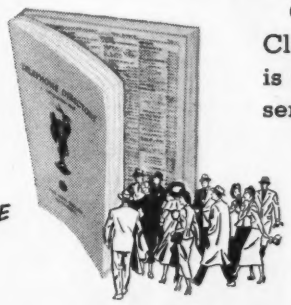
As a shopper in your community, how do you go about finding all the products and services you need?

If you do what 9 out of 10 shoppers do—you probably go right to the 'yellow pages' of your local telephone directory.

That is a buying habit that has been going on for over 60 years. We know...because we've checked with folks in communities throughout the nation again and again.

That's why so many fuel oil dealers consider it smart advertising to have their name and sales message in the 'yellow pages'.

Check the headings in your local Classified... make sure your name is under the products you sell and services you render.



AMERICA'S BUYING GUIDE

FOR OVER 60 YEARS

FOR FURTHER INFORMATION, CALL YOUR LOCAL TELEPHONE BUSINESS OFFICE

fuel oil oil heat

sented by member speakers to groups throughout the state. The talk is built around material contained in the booklet of the National Warm Air Heating and Air Conditioning Association, "Seven Steps to Indoor Comfort." Speakers will receive 20 illustrative cards, easel, light, packing case and practical instructions for making each presentation.

The Indiana Quarter Century Club was organized at the meeting, consisting of all contractors who have been active for 25 years or more in the industry.

A.S.M.E. Nominates new officers for 1952

THE AMERICAN SOCIETY of Mechanical Engineers has received nominations for all its executive positions for the year 1952. Since only one name is submitted for each office, nomination is tantamount to election. Mr. Reginald J. S. Pigott, director of the engineering division of the Gulf Research Development Co., of Pittsburgh, a subsidiary of the Gulf Oil Corp., has been nominated to fill the post of President.

Regional vice-presidents nominated are: Willis F. Thompson, chief mechanical engineer, Westcott & Mapes, Inc., New Haven, Conn., Ernest H. Hanhart, consulting mechanical engineer, Baltimore, Md., Ernest S. Theiss, assistant chief engineer, Davey Compressor Co., Kent, Ohio, Samuel H. Graff, (renomination) director, engineering experimental station, Oregon State College, Corvallis, Ore.

Nominated as directors at large: Albert C. Pasini, superintendent, production department, The Detroit Edison Co., Detroit, Mich., Paul B. Eaton, head, mechanical engineering dept., LaFayette College, Easton, Pa.

Election will take place in the fall by letter ballot of the membership. The new officers are to begin their terms at the conclusion of the Society's annual meeting in December.

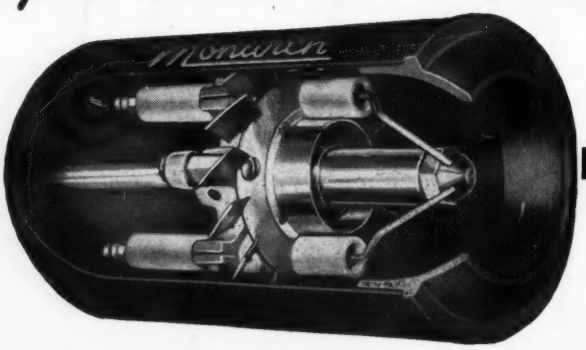
I-B-R Short Course held at Navy Pier, Chicago

JUNE 12, 13, 14 AND 15 were the dates of the Fifth Short Course on Hot Water and Steam Heating Systems, sponsored jointly by the Institute of Boiler and Radiator Manufacturers and the University of Illinois. This year's course was held at the Navy Pier, Chicago Undergraduate Division of the University.

To qualify for attendance at the 1951 Course, students were required to have attended a previous Short Course, an I-B-R School of Modern Heating, or equivalent. Principal subjects covered were heat loss and heating system performance as affected by building construction; simplified piping to reduce costs of heating systems, using the design of a baseboard heating system as a classroom problem and example; design of heating system for multiple family dwellings and panel heating system design, including information on both floor and ceiling panel systems. The multiple family dwelling system portion of the Course studied the design of a hot water and a steam heating system for a small apartment building, discussing zoning and the selection of controls.

.....MONARCH.....

Investigate THE NEW G81 COMBUSTION HEAD



The new G81 combustion head will produce just as high combustion efficiency as the G74 head and will burn from .60 to 2.00 gph.

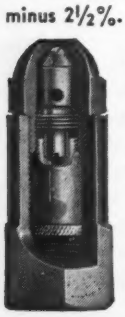
"PLUS" FEATURES OVER THE G74

- Costs half as much.
- As easy to install as an ordinary air cone and stabilizer.
- Simpler in construction.

WRITE FOR INFORMATION

MONARCH BURNER NOZZLES Preferred Because:

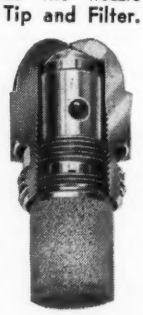
1. Each nozzle is individually tested and checked for capacity against the flow of a calibrated master sample. Capacity tolerances are as low as plus or minus 2½%.



2. Standard nozzles will fire most gun type high pressure burners satisfactorily. (Special series are also available for burners requiring specified spray characteristics.)

New Monarch Porous Bronze Nozzle Filter

The first practical all-metal Nozzle Filter. Rugged and compact. Solid metal to metal contact with Tip eliminates any possibility of dirt getting inside the nozzle between the Tip and Filter. Equivalent to 200 mesh screen, and recommended for use on fractional gallonage nozzles.



Write for Catalog D

MONARCH MFG. WORKS, INC.

2503 E. ONTARIO ST., PHILADELPHIA 34, PENNA.

European Distributor: A. Coutau, Rue de la Scie No. 16, Geneva, Switzerland

2 NEW High Boys

OIL-FIRED

1

TYPE 215 Counter-flow

Type 214 Oil-Fired Winter Air Conditioner is a compact, competitively priced "high boy" for basement, closet or utility room installation. It is shipped assembled; will go through most any door. Rugged steel construction, easy to clean and service. Your choice of two burners; easily converted to gas. Get complete details, write: *L. J. Mueller Furnace Company, 2050J W. Oklahoma Avenue, Milwaukee 15, Wisconsin.*

These features of the types 214 and 215 put power in your selling

- **Compact, space-saving** — only 24½" wide, 28" deep. (Type 215 — 69½" high; Type 214 — 66½".)
- **100,000 Btu capacity**—available with either of two efficient Mueller pressure-atomizing oil burners, delivering .67 GPH.
- **Designed convertibility** — replacing oil burner with Mueller's efficient gas burner is simple, quick, inexpensive.
- **Competitively priced** — and Mueller's quality construction makes each a big-value buy.
- **All-welded heat exchanger**—made of heavy gauge steel. Square wrap-around radiator. Designed to eliminate expansion and contraction noises. Easily cleaned.
- **Quiet blower**—large, 13" size. Motor cushioned on rubber. Adjustable sheave with V-belt drive. Factory assembled, adjusted.
- **Handsome steel casing** — lined with sound-absorbing, heat-reflecting asbestos which is laminated with aluminum foil.
- **Efficient up-draft design**—long flue travel.
- **Easy servicing** — completely cleanable through removable access panels.
- **Low-cost installation** — both units shipped assembled; controls on the type 215 are pre-wired.

F-50

2

TYPE 214 Conventional flow

Type 215 Oil-Fired Counter-Flow is designed essentially for warm air perimeter heating or installations where discharged air can more economically be connected to bottom or lower part of furnace. Ideal for closet and utility room installations in slab or crawl space homes. Shipped assembled with fan and two limit switches pre-wired into convenient outlet box. Priced right. Write for facts and figures: *L. J. Mueller Furnace Company, 2050J W. Oklahoma Avenue, Milwaukee 15, Wis.*

94th Anniversary

Mueller Climatrol

FOR GAS FOR OIL FOR COAL

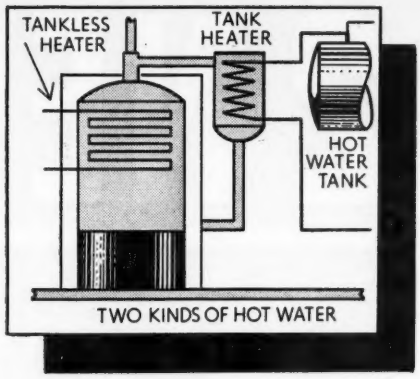
fuel oil & oil heat

Everyday Snags

Two-Family hot Water

After changing his house from one-family to two-family and using his built-in tankless coil for the whole house for six months, this home owner decided he had to do something to get better hot water. He told his oilburner service man that his tenant was a hog about hot water, was using four times as much as was suitable because the rent was the same no matter how much hot water the tenant used. The tankless heater seemed barely able to supply one family with an abundance of hot water anyhow, the owner said.

The boiler did not have enough Btu input and output for a tankless heater considerably bigger than the one built-in the boiler, the service man pointed out to the owner. Installing a bigger tankless heater would be playing right into the tenant's hands anyhow, the service man said, for if it did supply enough hot water it would permit the tenant to waste as much as he pleased



TWO KINDS OF HOT WATER

The proper answer to the problem, the service man went on, lay in switching the tenant to tank-type water heating with an indirect water heater of modest capacity and a 30-gallon tank. The tank heater was coupled to the hot water heating boiler as the drawing shows, and the 30-gallon tank was installed horizontally and located as high as possible.

The owner, using the tankless heater for himself now, gets as much hot water as he did before he had a tenant in the house. To the owner's disgust, the tenant starts out with an excellent supply of hot water, for to start out the tank gives hot water much hotter than the tankless heater ever gives. But there's this satisfaction in the thing for the owner anyhow. He has found out, he says, that haywire excessive use of hot water by the tenant causes the 30-gallon tank to go cold, and that then there's a wait of about three hours before the tenant can start out again with a tankful of fairly hot water. The landlord found this out by staying in the basement most of the weekend, the service man reports and checking every 15 minutes on the temperature of the hot water tank and the hot line coming from it.

"Can I provide metered and miserly hot water for a tenant?" the service man chuckles.

* * *

Automatic Deliveries

In searching for methods to insure dependable automatic deliveries, especially during coldest weather when run-outs are most costly and upsetting, those fueloil companies using the well-known "K System" for making auto-

(*Continues on page* 88)

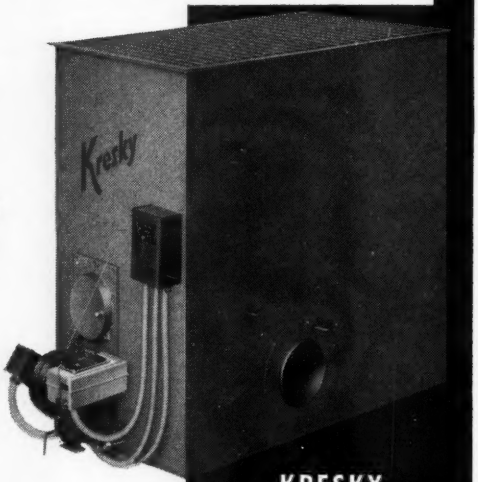
Kresky OIL HEATING

ONE OUT OF EVERY FOUR OIL FLOOR FURNACES SOLD IS A KRESKY!

Ask to see the live demonstration which shows the famous Kresky burner in action . . . the best furnace selling tool in today's market.

OIL FLOOR FURNACE

Leads the way to a NEW heating market and helps offset your sheet metal shortage



KRESKY EVENHEAT MODEL

The most popular Oil Floor Furnace in America—one of seven models to choose from.

You are already established in the market for central heating . . . a market you may be facing trouble to supply because of the steel shortage.

NOW IS JUST THE TIME TO BREAK INTO A NEW MARKET WITH AN ITEM THAT DOESN'T NEED ANY SHEET METAL.

There are millions of small homes which cannot afford central heating. The Kresky Oil Floor Furnace meets their need perfectly. Simple to install, it gives them big-home heating with automatic thermostat control at moderate cost.

And it's a natural for you. It requires no ducts, no other sheet metal work. It's a complete package ready for delivery to a big market, which can soon mean volume enough to make it a highly profitable phase of your business . . . and go a long way toward offsetting your sheet metal shortage.

Pioneering Leadership Since 1910

FLOOR & WALL FURNACES • BASEMENT & UTILITY FURNACES
SPACE HEATERS • STORAGE & AUXILIARY WATER HEATERS

Kresky OIL HEATING

MAIL THIS COUPON TODAY

KRESKY MFG. CO., INC. 851-FOH
2nd & H Streets, Petaluma, California

Send me complete facts and figures on Kresky Oil Floor Furnaces. Also the name of the nearest Kresky distributor.

Name_____

Company_____

Address_____

City_____ State_____

Limited number of territories open for qualified distributors.

Are you being robbed by....

SERVICE CALLS

No moving parts in the Head

THE *"Swirling Flame"* LINE

consists of 3 models:
Model A-1, Firing Rate .05 to .75 G. P. H.

Model A-3, Firing Rate 3.0 to 7.0 G. P. H.

and . . .

MODEL A-2

Firing Rate .75 to 3.0 G. P. H.

Mr. Dealer, no need to let this *THIEF* steal your hard earned Profits!

Here is your opportunity to handle a Burner that requires practically no Servicing. A Burner, so designed that there is **no coking of points . . . no combustion chamber to be a constant source of trouble (*"Swirling Flame"* does not use a combustion chamber) . . . no moving parts in the Head to wear out.** These, and 33 other Plus Advantages, make *"Swirling Flame"* a real Profit Maker and the Most Competitive burner on the market . . . ***Saleswise, Servicewise, Profitwise.***

Write for information as to how you can become a *"Swirling Flame"* Dealer. Learn about our attractive Dealer Plan and Sales Creating Advertising Helps.

SWIRLING OIL BURNER MFG. CORPORATION
22-15 37th Avenue, Long Island City 1, New York

Vertical High Pressure Atomizing Oil Burners

Swirling Flame

THE BURNER WITH THE *Plus Advantages*

fuel oil & oil heat

matic deliveries should study up on the use of "corrected degree-days."

Developed especially for the K System by the inventor of this automatic delivery system, corrected degree-days start at 70° instead of 65°, and build up faster than the usual degree-days when the outside weather drops below 30°.

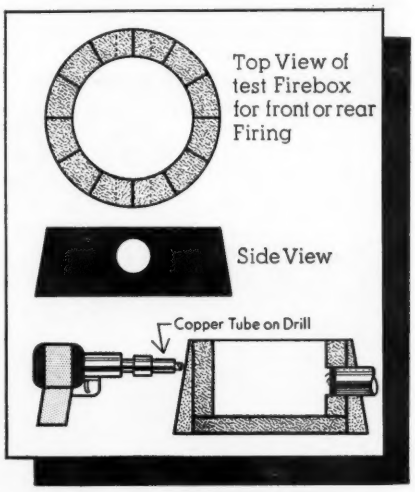
Here's the plan. When the outside mean temperature is between 30° and 70°, call each degree below 70° one degree-day. When the temperature is below 30°, call each degree below that point (below 30°) 1½ degree-days.

On this basis of corrected degree-days, 40° outside corresponds to 30 corrected degree-days; 30° out to 40 DD; 20° out to 55 DD; 10° out to 70 DD; zero out to 85 DD.

All the details on corrected degree-days are given in pages 25 to 28 of the booklet, "Fueloil Handling," available from FUELOIL & OIL HEAT for $1. This book also includes the original and complete instructions for setting up and operating the K System, which first were published in 1933.

Testing combustion Heads

Quality of combustion depends greatly on the proper performance of the combustion head or the air-handling parts of a gun burner, and high quality combustion is a prerequisite to minimum oil consumption and clean



burning. Consequently the dyed-in-the-wool burner enthusiasts in dealer and manufacturer organizations are constantly checking on the quality of the flames given by different combustion heads.

CO_2 tests and smoke tests are used of necessity in checking combustion head performance. A good head can give, for test purposes at least, a CO_2 reading of 12% or higher together with a passably low smoke reading.

Pulsation on starting and stopping, and rumbling or roar or flame silence during normal operation count also. You've got to be practical-minded in judging combustion head performance.

To the expert, appearance of the flame means much. The expert looks for a steady flame front with the ignition off, if he aims to use intermittent ignition, and for freedom from impingement of all droplets on the walls and floor of the firebox. He may study a flame especially closely, if he has a preference for a flame of the hollow cone or full cone type.

Getting a good look at the flame is important, then, when testing out a new combustion head.

Here's a wrinkle for dealers' combustion experts as well as for manufacturers' engineers. The idea can be used as well for field testing as for laboratory work. Although the diagram shows a round firebox, this wrin-

Eddington
Oil Burner Nozzle Filters

Small-capacity nozzles get new efficiency

Anything that cuts down call-backs, saves your servicing time, gives your customer more continuous service is particularly appreciated these days. That's the job done by the Eddington Nozzle Filter on small-capacity nozzles. Located right at the nozzle it intercepts the final impurities, keeps oil and nozzle clean, provides maximum combustion efficiency—*and* helps you keep your own service up to par, no matter what's ahead.

Check your Eddington needs here:

- ☐ FILTERS
- ☐ NOZZLES
- ☐ VALVES
- ☐ STABILIZERS & AIR CONES
- ☐ STRAINERS
- ☐ ADAPTORS
- ☐ INSPECTION MIRRORS
- ☐ SERVICEMAN'S NOZZLE KITS

Want information on any of the items listed? Just drop us a postal; you'll get a quick reply.

EDDINGTON METAL SPECIALTY COMPANY
1050 Czarnecki Street, Eddington, Pa.

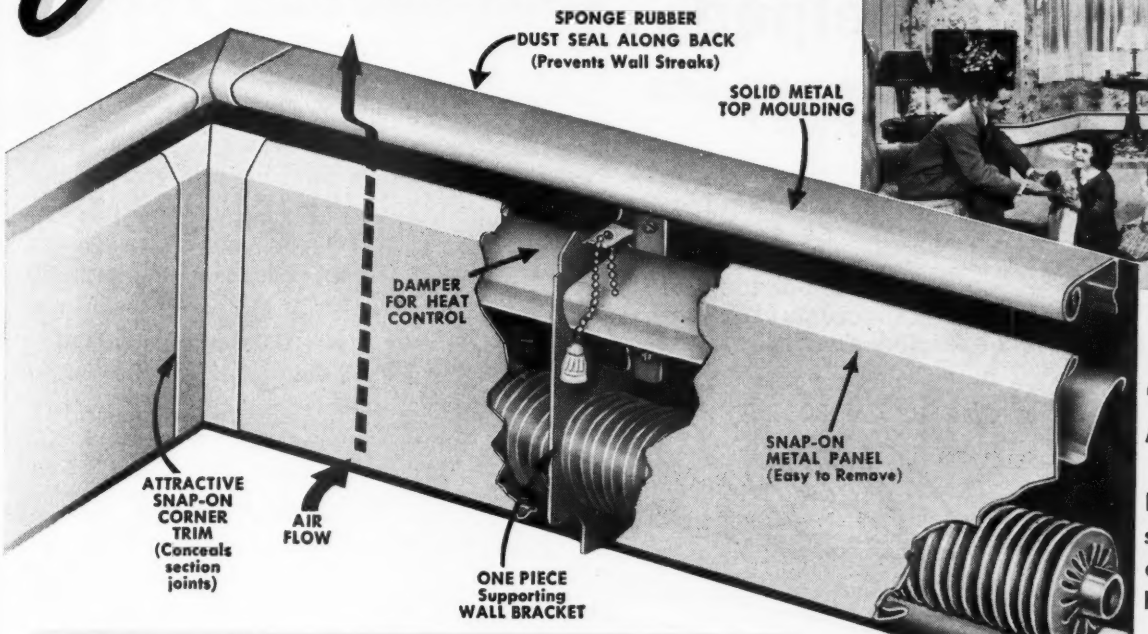
NOW AVAILABLE—A Limited Supply For IMMEDIATE DELIVERY

in Packages from 200 to 366 sq. ft.

NO ADDITIONAL WAREHOUSE SPACE NECESSARY

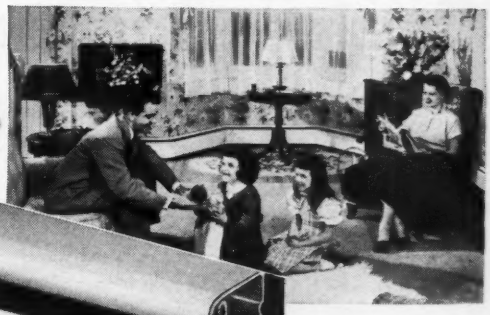
floorlevel

HOT WATER BASEBOARD RADIATION


SPONGE RUBBER DUST SEAL ALONG BACK (Prevents Wall Streaks)
SOLID METAL TOP MOULDING
DAMPER FOR HEAT CONTROL
SNAP-ON METAL PANEL (Easy to Remove)
ATTRACTIVE SNAP-ON CORNER TRIM (Conceals section joints)
AIR FLOW
ONE PIECE Supporting WALL BRACKET

PACKAGED COMPLETE

The Floorlevel package consists of fin-type heating element, front panel, top moulding, wall brackets, inside corners, outside corners, and terminals and splices. Packaged in convenient 10 foot lengths.



GO AFTER "OLD" HOME MODERNIZATION NOW

By selling & installing the finest and most modern hot water heating.

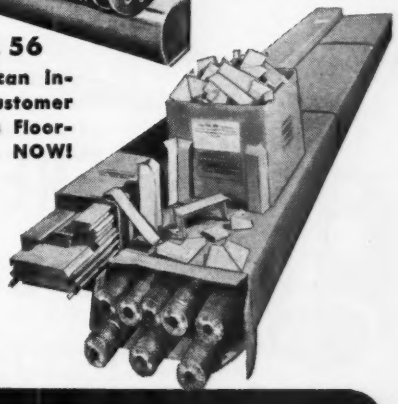
EASY TO SELL . . This lowest cost hot water heating system gives you quick, easy, profitable sales. Radiation packaged in 6 convenient sizes means that all you need know is the amount of radiation needed. Floorlevel is shipped ready to install.

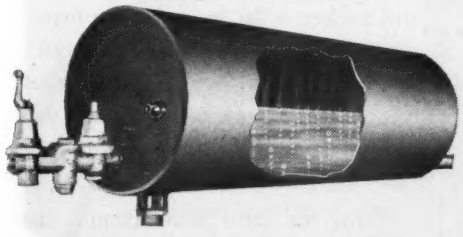
EASY TO INSTALL . . Floorlevel's all-in-one package increases savings on time, labor and materials. Each package is scientifically sized and tested by factory engineers.

EASY TO STORE . . Packaged complete with baseboard fittings . . . Floorlevel eliminates the stocking of dozens of items. The 6 convenient sizes give from 200 to 366 sq. ft. of radiation.

SEND FOR SPEC. 56

Find out how you can increase profits and customer satisfaction with this Floorlevel package . . . NOW!





DE-AIRATOR TANK

Avoid air trouble in baseboard installations. Install a De-Airator Tank on all baseboard jobs.

GENERAL Automatic

GENERAL AUTOMATIC PRODUCTS CORP.
2300 Sinclair Lane • Baltimore 13, Md.

MFGRS. OF A COMPLETE LINE OF OIL & GAS FIRED HEATING EQUIPMENT

kle serves as well for a square or rectangular firebox.

When you're completed your usual tests front-firing the furnace or boiler, cut a gun tube opening in the back of the base and make complete tests again on a basis of rear-firing. You can do this easily and quickly if you had it in mind to start out before you built the test firebox, and if you built the firebox of the insulating firebrick which permit you to cut through easily for the rear gun tube opening. Using insulating firebrick, the front gun tube opening which you used first can easily be plugged for the second set of tests.

The bottom drawing suggests slipping a piece of copper tubing on the drill when you make the circle of small holes which will give you the rear opening for the gun tube of the burner. Acting as a bumper just after the drill goes through the metal of the furnace or boiler base, this piece of copper tube spares the drill point the abuse of crashing into the firebrick.

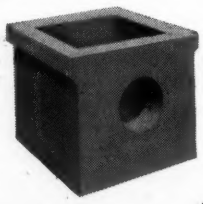
HERE'S how KOLB Engineering Helped . . .

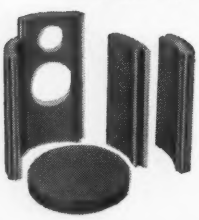
WATERFILM BOILERS
Jersey City 7, N. J.

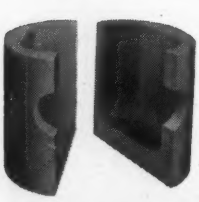
Dear Mr. Kolb:
The Kolb Kast chambers were carefully chosen as a component part of the Venko quality packaged unit because of the excellent combustion results obtained from their use.

Very truly yours,
WATERFILM BOILERS, INC.

A. R. Hanson







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Rejuvenating Tankless Coil

Here's an account of how service men remove entirely the lime from tankless water heater coils in hard water areas, under the supervision of a certain engineer. This is not a recommendation that you try the same thing, for only the most cautious men can do this work without great danger of damage from the acid.

The old tankless coil, plugged with lime and other material, is taken from the boiler and blocked up in the owner's driveway as the drawing shows. Great precautions are taken. The men wear old clothes only, and wear goggles to protect their eyes from any muriatic acid that might be splashed. A garden hose is kept running to provide instant and abundant water for washing away any acid spilled accidentally on shoes, clothes, or skin. A big bottle of ammonia or other mild caustic is kept handy for neutralizing any acid droplets that may get on the skin. The men don't walk into any acid spilled on the driveway. Spectators and pets are kept far away. At the end of the ceremony, the driveway and every bottle and funnel and pipe suspected of having been touched by acid are rinsed off half a dozen times with the stream of water from the hose.

The engineer has pipe fittings, as shown, coupled to the tankless coil to permit filling it with acid solution and catching the overflow. He starts cleaning the coil by feeding into it, using a tin funnel placed in the 1¼" nipple marked "Acid In," a mild solution of muriatic acid and water. This is made up by first pouring seven pints of water into a one-gallon glass cider jug, and then adding one pint of muriatic acid. The order of mixing is important. The water should not be added to a jug containing the acid.

Filled with this mild acid solution, the coil is gently and cautiously tilted and rocked a bit by a service man to make certain all air bubbles are out of it. A man who touches a pipe that's wet with the acid solution must wash his hands quickly in running water from the garden hose.

Using the hand pump from a Hays Orsat gas analyzer (this has been checked to make certain it won't leak

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- Unit completely assembled and wired at factory. Just mount the burner, connect the wiring and it's all set to go.

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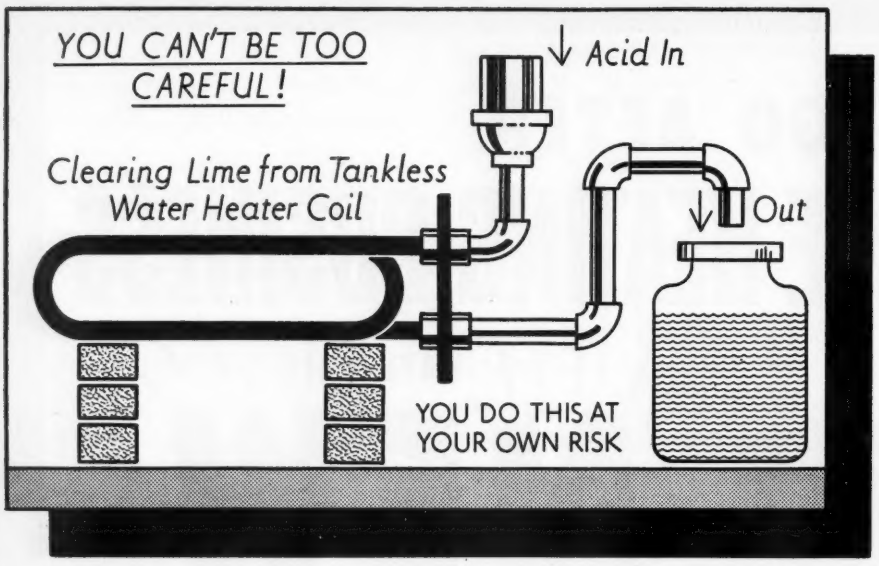

out a drop of acid solution) the engineer circulates the solution through the tankless coil, hand-pumping to take solution out of the glass jar shown in the drawing and lift it to the "Acid In" location. He does this for ten minutes or so. He could instead use a tin funnel and a narrow-neck bottle to collect the overflowing acid solution. And he could use several of these and pour the collected solution slowly back into the "Acid In" fitting, instead of hand-pumping it.

The mild acid solution is drained by tipping the coil, and the garden hose is tight-coupled to use full water pressure to flush out all loosened particles. Then a strong acid solution made by pouring one quart of muriatic acid into two and one-half quarts of water is poured into the coil and circulated slowly for ten minutes, the procedure being the same as was used for applying the milder solution used first.

The coil finally is given a five minute flush with the garden hose, under full water pressure, then is pressure-tested using a pressure gage. The outside of the coil, all pipe fittings, funnels, and bottles are rinsed to clear them of acid and make them 100% safe to handle and to use for other purposes. The driveway is flushed thoroughly with clear water to make it safe.

For additional pointers on cleaning tankless coils enfeebled or plugged by lime or other material, read p. 105 of the February 1951 issue of FUELOIL & OIL HEAT and p. 141 of the April 1951 issue.

* * *

Fueloil trucking Costs

Completing cost studies that extended over three years, the owner of a company delivering 12 million gallons of fueloil a year has arrived at this thumb rule. Every time a truck stops to deliver oil to a customer, the cost to the oil company is $4.00. There's so little difference between the

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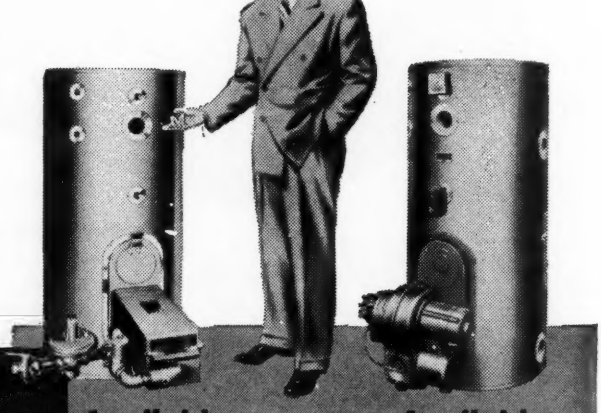

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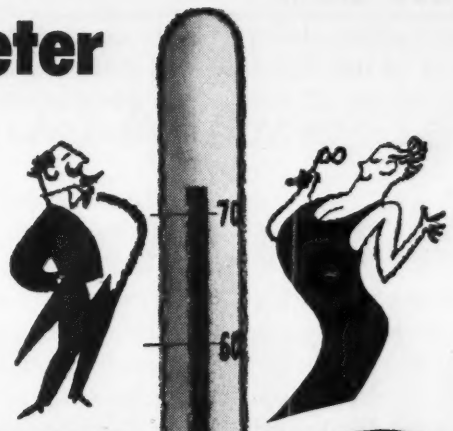

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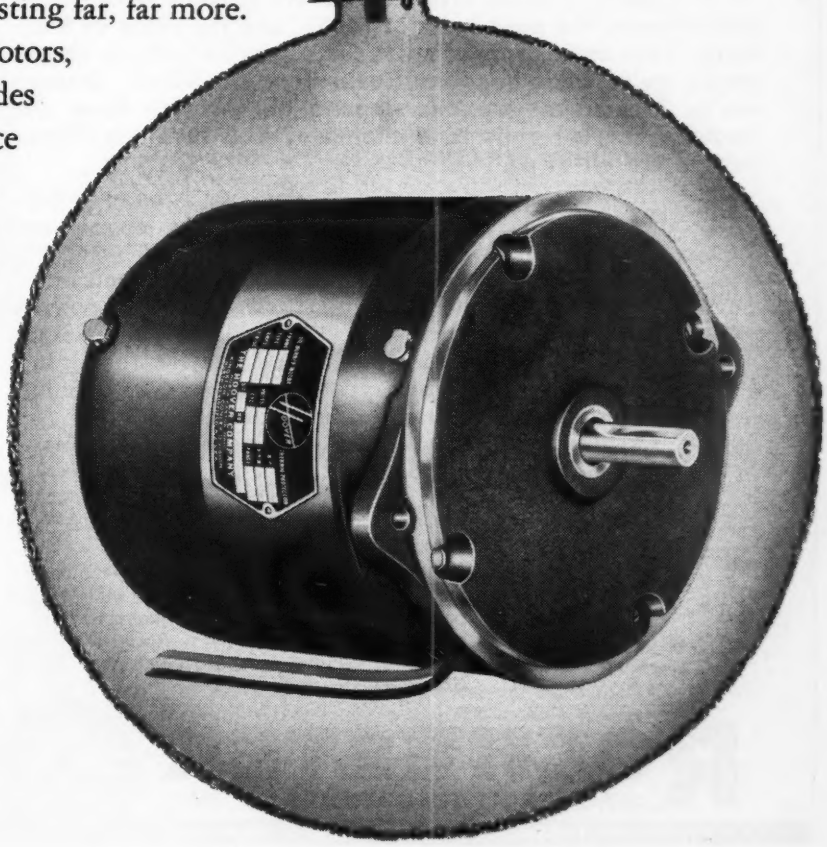
ELECTRIC MOTORS

When a customer's cold-weather comfort depends on an oil burner you have installed or serviced, that burner had better deliver warmth as wanted, reliably and without breakdown! That's why so many heating service companies rely on Hoover Motors!

Hoover oil burner motors give smooth, quiet, dependable performance, even under conditions of hard, continuous use. They're specifically designed to meet burner needs, and they're built like motors costing far, far more.

There are many other Hoover Motors, too—for many other applications besides oil burners. In fact, if you sell or service ANY motor-powered equipment, you'll undoubtedly find a Hoover Motor to fit your needs...satisfy your customers...to help YOUR reputation measure up!

Hoover Oil Burner Motors in ratings of ⅛ and ⅙ HP are built to conform with NEMA mounting standards... are approved by Underwriters' Laboratories... feature 1725 RPM speed, long-life bronze sleeve bearings, and totally enclosed construction.



Write today for complete information—on oil burner motors or on other motors for other purposes.

THE HOOVER COMPANY
Kingston-Conley Division
68 Brook Avenue
North Plainfield, New Jersey

cost to the company of stops to deliver 150 to 500 gallons of oil that this oil company owner figures that all such stops cost the company the same.

* * *

Furnace Adjustments

Service men who start up and later care for and adjust forced-air heating plants have widely different ideas regarding setting high limit controls. In one company which installs hundreds of furnaces a year, four service men were questioned. This brought out wide differences in opinion, the lowest man selecting 160° as proper for high limit controls and the highest selecting 275°.

The reason behind the questioning was a hair-splitting equipment owner. He had written a letter complaining that every time a service man called he tinkered with the high limit control and adjusted it differently. There must be a proper setting, he pointed out. Every man could not be correct!

To save time and prevent trouble with hair-splitting home owners, a dealer can safely tell all his service men to adjust usually for 200° as the bonnet temperature at which the high limit control stops the burner. This makes good instructions for good service men:

First, set all high limit controls of forced-air jobs at 200°, if you've no reason to use a lower or a higher setting.

Second, if you use a setting different from 200°, leave a note in the high limit control for the next man who visits the job. Explain briefly why you got better results using the unusual setting.

Of course, there are regulations and local ordinances which some furnace dealers observe regarding the maximum permissible settings for high limit controls.

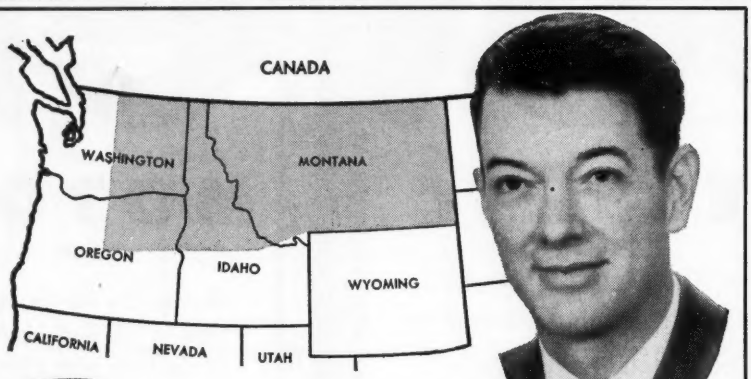
* * *

Undersize suction Line?

Impatient because of difficulty in starting a manual-type horizontal rotary cup burner on cold mornings, this big aviation company finally decided to spend some money to end the trouble. The company called in a dozen heating contractors and asked for bids on replacing the installed 1¼" suction line with a 2" line. The cost of the job ran high because the old line was four feet underground, ran a distance of 170 ft., and for the most part ran under pavement outside and under concrete floor in the building.

All the contractors called in gave bids promptly, except one. He did not assume, as did the others, that the big aviation company must be correct in stating a larger suction line was needed. Instead, he asked for permission to check the burner operation on a cold morning.

He drilled and tapped a ⅛" ipt opening in a suction line elbow located close to the burner, and installed a vacuum gage. Finding out that the vacuum did not exceed 10" with the fireman trying to start the burner while the job was cold, the contractor called the aviation company's attention to this thumb rule: If the vacuum does not exceed 10", the suction lines is not undersize. Then he proved his point by arranging



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Charles A. Black

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Mr. Black is typical of wholesalers the country over who have found through experience that the positive leak-proof feature of Rochester "Dual-Dial" Gauges stands for dependability. And they've found that Rochester Gauges pay off in years of trouble-free service and greater customer satisfaction.

Rochester "Dual-Dials" can mean more profits to you, too! Here's why:

- LEAK-PROOF
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- UNDERWRITERS' LISTED for 25 years

Stocked by your wholesaler for all standard basement oil burner storage tanks with 1½" and 2" flanges. *Order today.* Rochester Manufacturing Company, Inc., 8 Rockwood Street, Rochester 10, N. Y.

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MANUFACTURING COMPANY, INC.
ROCHESTER DEPENDABLE ACCURACY GAUGES
DIAL THERMOMETERS GAUGES AMMETERS

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RESIDENTIAL

the oil burner that's truly BEST BY TEST!

No Complaints on the Herco Residential. HERE'S WHY!

Herco Residential stays in alignment!
Heavy, one-piece housing. Weight carefully distributed to secure perfect alignment for at least 20 years.

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High and low voltage wires are separated. All wiring is enclosed within the burner. "Anti-Static" and "Tamper-Proof" wiring.

Quiet, odorless, sootless.
Burner case is sealed and soundproof . . . moving parts perform silently . . . carefully engineered controlled-combustion assures clean operation.

Economy and Efficiency.
Exclusive Herco features like the Mercoid Visaflame control and the economical Thrifti-fier mean outstanding, service-free performance for years to come.

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The Oil-Thrifty
OIL BURNER

yes, it's Factually TRUE

. . . that every piece of metal that goes into the assembly of a HERCO RESIDENTIAL is a grey or malleable iron casting.

. . . that every HERCO RESIDENTIAL is precision-machined for best performance.

. . . that there is interchangeability of parts between all models in the complete HERCO line.

. . . that the HERCO RESIDENTIAL and every other Herco oil burner will give years of trouble-free service. (We can back this statement with many actual case histories.)

. . . that the HERCO RESIDENTIAL (and every other Herco burner) is truly best by test because it is factory-fired before pronounced fit to fill your order.

HERCO SERVICE COSTS ARE LOWER THAN ANY OTHER ON THE MARKET.

Find out why!

Send for these three folders, describing in detail the Herco family of fine oil burners. If you are interested in selling dependable burners with a profit you can pocket for keeps (without costly service calls), then write today.

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BAROMETRIC CONTROLS

for automatic heating plants

FIELD TYPE M, first and finest for all types of automatic heating plants.

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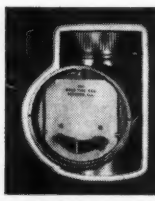

FIELD R series and "SCOTTY", pre-set or adjustable, to bring out the finest in stoves and ranges.

for water heaters

FIELD RNA-W, pre-set precision made, the finishing touch to a fine water heater.

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IN BETTER HOMES & GARDENS

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Cranes - Hoists

to pipe the returned oil into a 55-gallon drum. Starting the burner cold gave plenty of return-line oil and together with the vacuum gage reading proved oil was coming through the 1¼" suction line without difficulty.

It turned out that clogging of cool oil in the gph adjustment valve was causing the starting difficulty. Fitting the burner with an electric oil heater gave easy starting. Turned on a few minutes before the fireman tries to start the burner on a cold morning, this gives warm oil to the gph adjustment needle valve which is on the burner. The electric heater has a limit control to prevent overheating, of course.

The contractor's big complaint now is that the installation of the electric oil heater, which he regarded as an expedient only for temporary use, had ended the trouble too completely. He can't sell the aviation company the modern horizontal rotary burner it needs, with all the trimmings including a shipshape built-in automatic electric heater, controls for fully automatic operation, and latest electronic controls for complete safety.

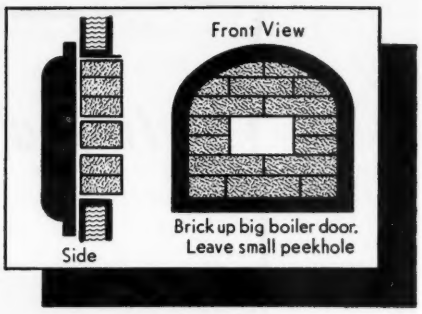
He says he used the wrong tactics in warding off the unnecessary expense of the new 2" suction line. He should have told the company that the oil burner, as installed, could not work on the 1¼" line, but that his new burner with all the trimmings could.

* * *

Improving big Boilers

Finding the big, expensive doors of an industrial boiler in the poor condition that gave many air leaks around the doors and frames, as part of his efforts to obtain higher CO_2 and higher efficiency this factory engineer had the door openings bricked up as this drawing shows. A plug made up of insulating brick bolted and cemented together can be removed to observe the fire, when the watch engineer wants a better look than comes of using the flame peekholes with which the boiler is fitted.

In addition to solving the problem of air leaks around the doors, the brick-up idea keeps the doors cool, upping the boiler efficiency somewhat and, more important, ending the rapid deterioration of the doors related to their becoming red hot at times of heavy loads.



It's true that bricked up in this way the doors can't provide "puff relief," but on this job that is not considered a disadvantage because electronic controls that act almost instantly will shut off the oil to the burners in case of flame failure. The chief engineer says he depends absolutely on these controls.

* * *

For quiet Motor Starts

Where a switch in motor types involves a split phase motor and a repulsion induction motor, usually you switch from the split phase motor to the repulsion induction motor to gain more powerful starting with less starting current.

It was different on this furnace job which had a ¼ hp repulsion induction motor to start out. So great was the starting torque of this excellent motor, the furnace dealer found, that there was a crash and a bang in the furnace when the motor was given current and tugged at its belt and mounting. Overambition to get started in a split second, the dealer says, caused a rumpus on starting.

He switched to a split phase motor. Feebler to start from a dead stop, this gives the smooth, quiet start the dealer was aiming to get.

* * *

Speeding up Unit Heaters

It was a lucky day for this owner of a little factory, who was complaining about insufficient heat from the botch heating plant that had been thrown together by a couple of pipefitters, when an oilburner dealer dug into the problem intensively.

Instead of going ahead and ordering a few more steam type unit heaters as

he'd told the factory owner he would, on getting back to his office the burner dealer acted on an impulse and started digging up data sheets on the capacities of the unit heaters already in use at the factory. He found the particular unit heaters came with 1150 rpm motors for unusual quietness, or with 1750 rpm motors that gave much higher Btu outputs from the units. Noise from the heaters not being important in this noisy factory, he hurried back to the job and found, sure enough, an 1150 motor in every unit heater. Switching to 1750 rpm motors and upping the gph of the boiler, which luckily was big enough for the additional load, gave all the additional heat the factory owner desired.

He missed out on an expensive job of putting in additional unit heaters and steam and return piping, the dealer admits, but he thinks he has, in the owner, a fueloil customer for life.

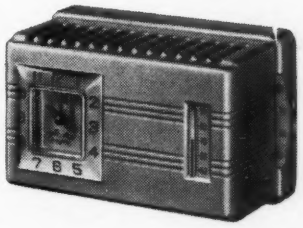
❖

J. M. Mackay has been named as director, executive vice-president and general manager of the Iron Fireman Mfg. Co. of Canada, Ltd., Toronto, Ontario. Mr. Mackay is a native of Canada, became associated with the company in 1926, and previously managed the company's plant in Toronto.

Harold W. Potter has recently joined the Century Eng. Corp., Cedar Rapids, Iowa, as district representative for the Michigan and Indiana sales territory. Mr. Potter has come to Century Eng. after many years of experience in the heating business.

B. R. McClure has been appointed assistant to the manager of sales, General Electric Co., Fractional Horsepower Motor Divisions, Fort Wayne, Ind. and *K. R. Whearly* has been placed in charge of the Distribution, Parts and Service Sales Section. Mr. McClure is a veteran in the sales divisions and has headed series motor sales, has supervised the distribution, publicity and statistical group and been staff assistant to the divisions' manager. Mr. Whearley, with G. E. since 1930, has had wide experience in the Fractional-Hp Motor Sales Div.

Facts to help you cash in on "The sales idea of the year!"

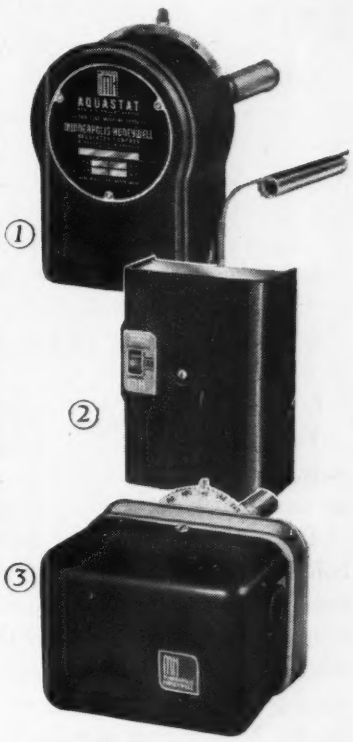


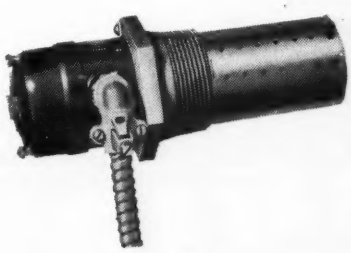
Honeywell Chronotherm

The TM850A is the most sensitive, most accurate bimetal thermostat ever built! It *automatically* lowers the temperature at night to save fuel; *automatically* raises it in the morning so your customers get up in a nice warm house. An ideal modernization item. Available in standard or plug-in models.

Honeywell Limit Controls

1) *The L428 Immersion Aquastat* is in wide demand as a limit control on hot water heating systems. Range adjustment, indicator and scale are easily accessible at top of case. 2) *Honeywell's new L486 Flexible Element Combination Furnace Control* provides for the first time positive furnace protection. If the single sensing element should rupture for any reason, it breaks the burner circuit and starts the fan. This means it's *fail-safe*. The L486 can be mounted inside or outside the furnace casing, or remotely—up to 60 inches from the sensing element. 3) *With the L147 Summer-Winter Controller*, seasonal resetting of the control point is unnecessary. Combines the functions of a burner-circulator control relay—and a low-limit immersion aquastat. Built-in transformer.





Honeywell Lo-Water Cut-Off

The C401 Lo-Water Cut-Off for boiler insertion, is a low cost control and simplified installation requires fewer parts. Highly dependable. Extra long life. Float responds instantly to changing water level and is unaffected by sludge. Manual reset standard.

For full facts on the above controls, and for free illustrated folder explaining how Honeywell's new consumer advertising is helping you, write Minneapolis-Honeywell, FH-8-129 Fourth Ave. South, Minneapolis 8, Minn.

MINNEAPOLIS **Honeywell**

H HONEYWELL

First in Controls

COMMERCIAL & INDUSTRIAL oilburning

Design of the industrial Installation

Part I—Computing boiler Load and selecting burner Size

by
Kalman Steiner*

THESE ARE THE STEPS involved in designing an industrial oilburner installation:

a. Compute the load to be carried
b. Compare the load with the boiler rating, and determine percentage of boiler capacity required to carry load
c. Select the required burner size and auxiliary equipment
d. Design the required boiler setting or combustion chamber
e. Select a tank size and determine pipe sizes
f. Decide on a control system

The present article will discuss these steps through the first part of *c*, i.e., up to selection of burner size.

There are several ways of expressing boiler load, depending upon the nature of it. Square feet of steam radiation and boiler horsepower are the two most commonly used, and total Btu is coming into more extensive use, as it should. Most burner men are familiar with cast-iron radiation and the ratings of each type and size, as used in the several kinds of steam heating systems: one-pipe, two-pipe, vacuum, vapor, etc.

To the total standing steam radiation add 25 per cent for piping and pickup, to arrive at the total boiler load. For hot water radiation in older systems that were probably designed for an output of 150 Btu per sq. ft. per hr., multiply the total standing radiation by 0.625 to get steam equivalent. For newer systems employing circulators, the basis of design is likely to be 200 Btu per sq. ft. per hr.; multiply the total radiation by 0.833. Convectors, unit heaters and baseboard radiation pose more complicated situations. Where a manufacturer's name plate appears, catalog data will reveal the rating. Otherwise, a close approximation can be had from comparing the dimensions with similar equipment listed in current catalogs.

In computing boiler load to carry water heaters, some attention must be devoted to the type of heater and type of storage. Older installations of indirect water heater and storage tank (the so-called summer-winter hookup) usually carried a design rating of three hours supply for the tank and three hours recovery for the heater. In other words, if a hot water tank had a capacity of 1000 gal., the heater capacity would be 333 gph. (Tank capacity can be computed readily by the formula: gal. $= 5.9 \times \text{diam.}^2 \times$ length, all dimensions being in feet.)

A rough check on required hot water for apartments is to multiply the total number of apartments by 10 gph. Modern practice uses storage of about one hour's supply. New tankless heaters must either be identified by a label if

Table I. Estimated Hot Water Demand Characteristics for Various Types of Buildings

Type of Building	*Hot Water Required*	*Max. Hourly Demand in Relation to Day's Use*	*Duration of Peak Load Hours*	*Storage Capacity in Relation to Day's Use*	*Heating Capacity in Relation to Day's Use*
Residences, apartments, hotels, etc.	40 gal. per person per day*	1/7	4	1/5	1/7
Office buildings .	2 gal. per person per day*	1/5	2	1/5	1/6
Factory buildings.	5 gal. per person per day*	1/3	1	2/5	1/8
Restaurants				1/10	1/10
Restaurants 3 meals per day		1/10	8	1/5	1/10
Restaurants 1 meal per day		1/5	2	2/5	1/6

*At 140 F.

(From *Heating Ventilating Air Conditioning Guide* 1951, Chapter 48)

Table II. Hot Water Demand per Fixture for Various Types of Buildings

Gallons of water per hour per fixture, calculated at a final temperature of 140 F.

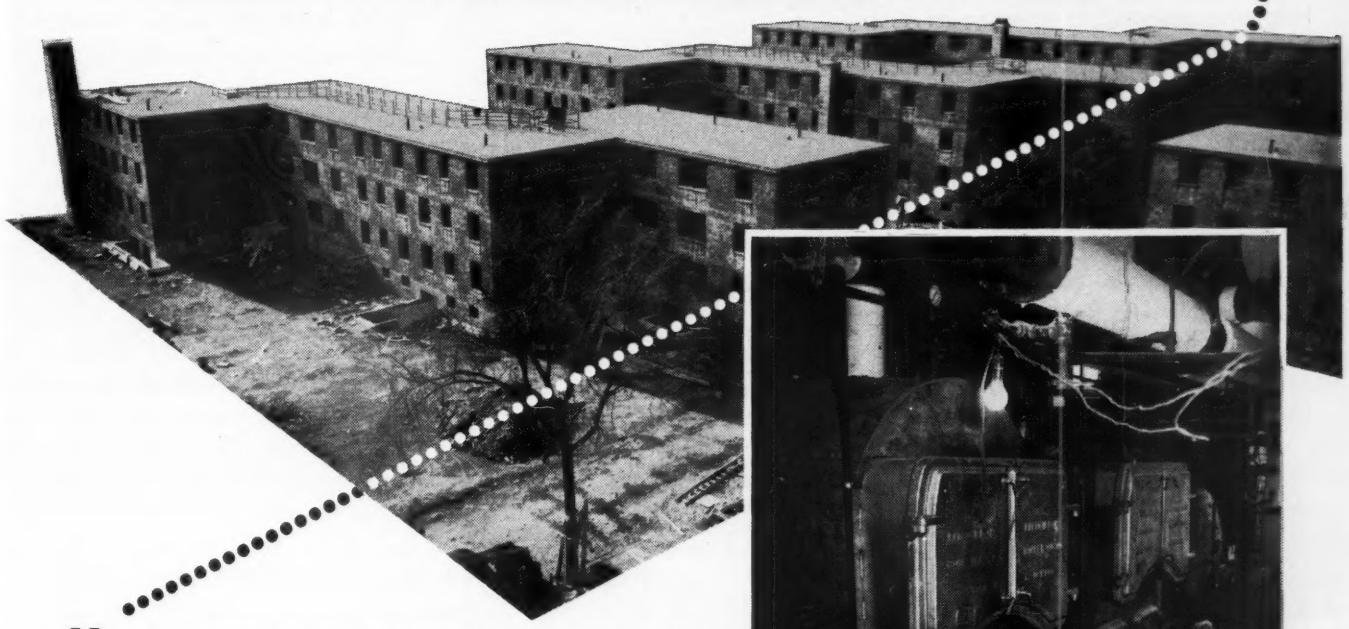
	Apartment House	*Club*	*Gymnasium*	*Hospital*	*Hotel*	*Industrial Plant*	*Office Building*	*Private Residence*	*School*	*Y.M.C.A.*
1. Basins, private lavatory	2	2	2	2	2	2	2	2	2	2
2. Basins, public lavatory	4	6	8	6	8	12	6	..	15	8
3. Bathtubs	20	20	30	20	20	30	..	20	..	30
4. Dishwashers ..	15	50–150	..	50–150	50–200	20–100	..	15	20–100	20–100
5. Foot basins ...	3	3	12	3	3	12	..	3	3	12
6. Kitchen sink ..	10	20	..	20	20	20	..	10	10	20
7. Laundry, stationary tubs ..	20	28	..	28	28	..	..	20	..	28
8. Pantry sink ..	5	10	..	10	10	..	..	5	10	10
9. Showers	75	150	225	75	75	225	..	75	225	225
10. Slop sink	20	20	..	20	30	20	15	15	20	20
11. Demand factor.	0.30	0.30	0.40	0.25	0.25	0.40	0.30	0.30	0.40	0.40
12. Storage capacity factor*	1.25	0.90	1.00	0.60	0.80	1.00	2.00	0.70	1.00	1.00

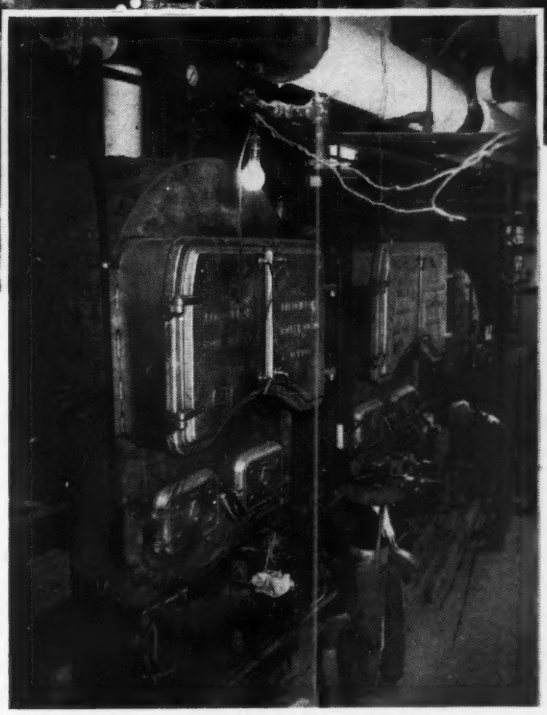
*Ratio of storage tank capacity to probable maximum demand per hour.
(From *Heating Ventilating Air Conditioning Guide* 1951, Chapter 48)

*C. Hoffberger Co., Baltimore, Md.

This housing project

WILL HAVE ECONOMICAL HEAT





Nearing completion in the photo above is the Providence (R. I.) Housing Authority's Codding Court Project. The entire project is centrally heated by two Fitzgibbons 12,100 sq. ft. "D" Type boilers, oil fired. Just another of the many similar projects in population centers everywhere, holding operating costs down by applying the fuel savings of Fitzgibbons steel boilers. Write for Bulletin HP-6.

Architects and Engineers, Creer, Kent, Mather, Cruise & Aldrich, of Providence. General Contractors, The Gilbane Building Co., Providence. Heating Contractor, Joseph P. Cuddigan, Providence.

Above, the boiler room of Codding Court Housing Project, with workmen putting in final touches on the installation of the Fitzgibbons boilers.

Men who know boilers select...

FITZGIBBONS

65th Anniversary

MOST ECONOMICAL IN FUEL — 1886 — THE FITZGIBBONS BOILER

1886 - 1951

Fitzgibbons Boiler Company, Inc.

General Offices: 101 PARK AVENUE, NEW YORK 17, N. Y.

Manufactured at OSWEGO, N. Y. • Branches in Principal Cities

fuelfoil oilheat

a catalog number appears on the heater, or the consumption must be checked otherwise. A summary of the hot water requirements for various types of buildings will be found in the ASH & VE Guide, of which a condensation appears in Tables I and II.

Hot water demand in gph can be translated into equivalent sq. ft. steam radiation as follows: Assume a temperature rise of 100° F, which represents 833 Btu per gal. imparted to the water. Since no process of heat transfer is perfect, some heat will be lost. If the boiler is called upon to deliver 960 Btu per gal. water heated, that would be equivalent to 4 sq. ft. steam radiation per gal. per hr., which is a good design value to use.

Industrial process demand for steam for various types of equipment presents an interesting problem to the dealer who lays out a burner installation. Most processes of this type require high pressure steam, that is, steam at pressures varying from 75 to 125 psi. Garment pressing in dry cleaning establishments and clothing factories takes between 75 and 90 psi. Laundries need at least 100 psi for flatwork ironers. Food canners call for pressures up to 125 psi. Dairies can pasteurize, and clean cans and bottles, with steam at about 100 psi.

In surveying such plants, the dealer cannot depend too much upon the conception of steam demand values expressed by plant operators, who sometimes confuse steam pressure with horsepower demand. Obtain all possible name plate data from the machines, and then try to consult a representative of the manufacturer. Some data on steam demand for various items of equipment in sundry processes will be found in "Oil Burner Service Manual," by Steiner and Ravnsbeck, and a condensation thereof in Table III.

Thus it appears that the average industrial oilburner job will be called upon for carrying three classes of load: building heating, hot-water supply,

Table III. Steam Requirements for Various Process Equipment

	HP
Restaurants	
Bain-marie, per foot	1
Coffee urns, for each 10 gal.	½
Kettle, stock, 40 gal.	2
Kettle, stock, 100 gal.	4
Steam table, each 6 ft.	1½
Vegetable Boiler	1½
Dishwasher	1
Cup and plate warmer	1
Dairies	
Bottle washer, 6 bottles wide	9
Bottle washer, 10 bottles wide	15
Bottle-case washer	3
Can washer, rotary, 3 cans per min.	18
Can washer, rotary, 6 cans per min.	27
Can washer, straight, 6 cans per min.	20
Can washer, straight, 12 cans per min.	40
Can washer, straight, 16 cans per min.	50
Pasteurizers, per 1,000 gal. per hr.	23
Laundries & Dry Cleaning	
Tumbler, 30" x 42"	2½
Tumbler, 36" x 48"	6
Tumbler, 40" x 94"	12
Garment press, 25"	1/3
Garment press, 40"	1
Garment press, 52"	1½
Collar and cuff ironer	1
Bosom ironer	1½
Flatwork ironer, 100", 4 roll	6½
Flatwork ironer, 120", 4 roll	8
Flatwork ironer, 110", 6 roll	11
Flatwork ironer, 120", 8 roll	16
Solvent still, 50 gal.	2
Solvent still, 100 gal.	4
Solvent still, 250 gal.	8
Solvent still, 1,000 gal.	15

and high pressure steam for process applications. There are also less usual applications, such as drying kilns, air heaters, metal melting, where design calls for rather specialized knowledge and experience. But the three typical boiler loads mentioned are of frequent occurrence, and the dealer should be able to think in terms of the various ways of expressing such loads.

A square foot of steam radiation equals 240 Btu per hr. A boiler horsepower represents 33,500 Btu per hr. Dividing, one gets a ratio of about 140 sq. ft. steam radiation equivalent to 1 boiler horsepower (140 sq. ft. EDR = bhp). The heat content of heavy oil varies from 145,000 to 152,000 Btu per gal., depending upon grade. Efficiency of utilization varies from 70 to 78 per cent, depending upon prevailing conditions. For quick computation of the relationship between fuel and load, the practice is to allow 400 sq. ft. EDR per gal. of oil, and 3 bhp-hr. per gal. of oil. Thus a burner rated 30 gph would be capable of carrying 12,000 sq. ft. EDR, or 90 bhp.

We have thus far considered load and burner capacity, or two of the three factors present in every application of an industrial burner. The third and most complicated factor is the boiler rating. To apprehend the significance of boiler rating, we will have to review briefly the several methods by which boilers have been and are rated.

Consider a 30-year-old heating system consisting of a sectional cast-iron boiler and cast-iron radiators. Suppose the total of the radiation amounts to 1520 sq. ft. Assuming the boiler still has its identifying number, look it up in a manufacturer's catalog or compilation of such catalog data. Probably, the catalog will show a rating of as much as 3200 sq. ft. In the vernacular, the published rating is called the commercial rating. The trade understood that a boiler carried a commercial rating of anywhere from 150 to 200 per cent of its actual net load rating, and selected a boiler accordingly.

IBR and SBI Ratings

In more recent years, many manufacturers of cast-iron boilers publish an IBR rating. The Institute of Boiler and Radiator Manufacturers actually tests at least one size of a given series of boilers and establishes its capacity by laboratory performance. Any manufacturer who is a member of IBR attaches to each boiler a name plate plainly showing the catalog number and rating. Published catalog data for each boiler will give the gross and net ratings in sq. ft. steam, sq. ft. hot water (150 Btu) radiation, and Btu's.

Low pressure steel boilers now are rated, under the Steel Boiler Institute (SBI) Code (formerly SHBI Code), at 17 sq. ft. steam radiation gross per sq. ft. boiler heating surface if mechanically fired (oil, gas or stoker), and 14 sq. ft. if handfired. Older steel boilers (prior to 1935) were usually rated on the basis of 14 to 1. If originally selected on the old basis of rating, as compared to load, such a steel boiler can take 25% more load without exceeding present day rating on the same boiler. This accounts for the fact, for instance, that where a building was equipped with two boilers for handfiring, and required both to be operating in cold weather, either of the boilers

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- ✓ CHURCHES
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Why limit your sales volume and profits to the crowded, highly competitive light-oil burner markets! Cash in on today's trend and demand for heavier, lower-cost fuels for commercial and industrial heating. Show cost-conscious fuel users — apartments, industrial and business buildings, institutions — how to cut operating expense by using low-cost, high-heat-value heavy fuel oils up to and including No. 5.

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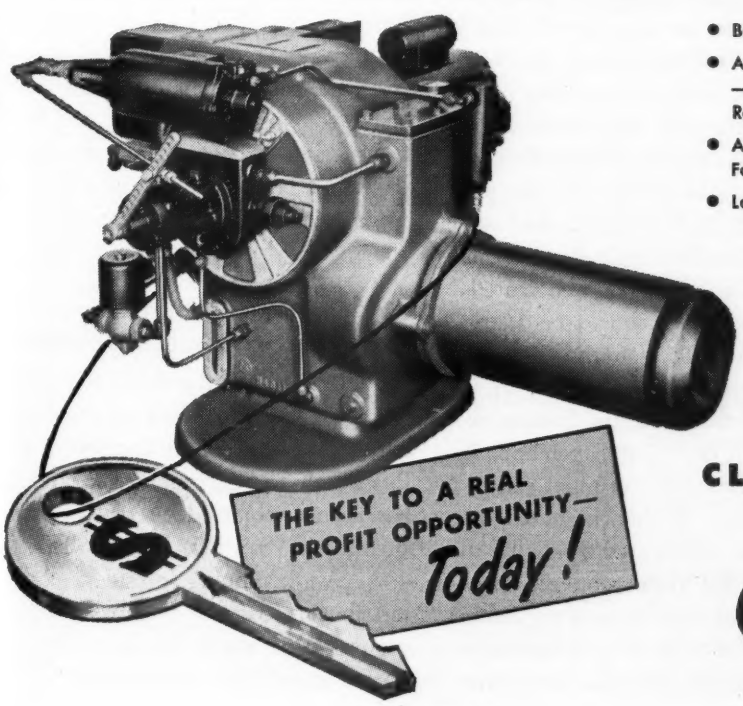
— because it efficiently uses the heavier, less expensive commercial No. 5 fuel oils instead of the standard light distillate oils, costing 20% to 30% more, the HEV-E Burner is a selling "natural" in these days of high and rising costs. It's a key to bigger volume —greater profit — in selling to important commercial buyers —buyers who use more than 5,000 gals. of oil a year or more than 40 tons of coal annually. Hundreds of highly satisfied owners of HEV-E Burners (more than 3,500 in operation today) report substantial savings — costs cut as much as 50% in many cases.



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features that pack real selling power in quality equipment that sells at a quality price — the product of a nationally known manufacturer of oil-combustion equipment.

- Burns low cost No. 5 oil
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Don't overlook the value of all these features and this real profit opportunity in today's commercial and industrial oil burner market — sell the Cleaver-Brooks HEV-E Oil Burner.

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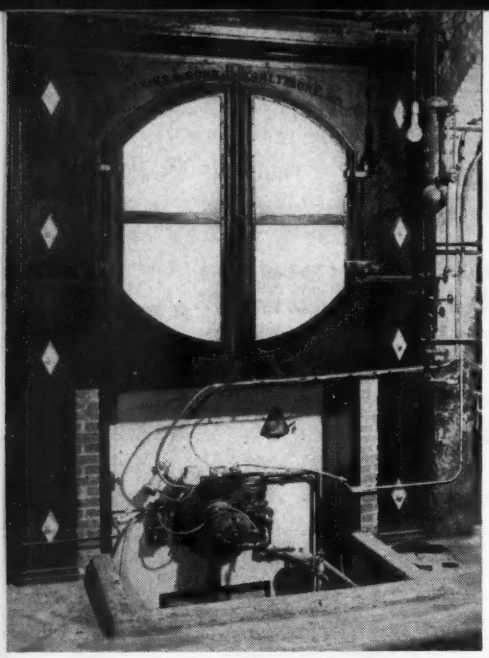


COMMERCIAL & INDUSTRIAL oilburning

on oil will carry the building unassisted, provided the burner installation is correctly designed.

High pressure steel boilers formerly were, and generally speaking even today are still rated on the basis of 10 sq. ft. heating surface to the horsepower. This will be readily apparent from the observation above that 140 sq. ft. steam radiation equals a boiler horsepower, and that the original radiation rating of steel boilers was 14 to 1. But it has been known for years that such boilers will easily develop more than 1 hp., or more than 140 sq. ft. EDR, per 10 sq. ft. of heating surface. Hence we have the SBI Code which allows 170 sq. ft. instead of 140.

And, for purely process applications, if a correct boiler setting is provided, these boilers can be developed to ratings approaching, and often reaching, 200 per cent of the old hand-fired ratings. Many manufacturers recognize the obsolescence of the 10 to 1 rule, and show catalog ratings greater than that, but there is no uniformity in rating practice on high pressure boilers.

Manufacturers of package boilers take advantage of the possibilities of exceeding old-fashioned ratings, and place catalog capacities on their boiler-burner combinations that almost always reach, and sometimes exceed, 200 per cent of the 10 to 1 ratio. But the industrial burner dealer is not often called upon to design burners for such packages, and so there is no point to discussing their design here.

Occasionally the dealer will encounter a large warm air furnace, as might be used for heating a theatre or other auditorium. Such furnaces will usually be rated in terms of Btu per hr. output. A conservative design is to allow 100,000 useful Btu per gal. oil. Hence a furnace rated 2 million Btu per hr. will require a burner rated 20 gph.

Selecting burner Size

Having made his survey of the job, and obtained all pertinent data, the dealer is now ready to select a burner size. If the boiler is cast-iron and older than the IBR Code, the catalog rating is probably from 1½ to twice the net load. If possible, consult with a representative of the manufacturer to obtain the net load rating, or else compare the boiler to a modern boiler of equivalent dimensions and use its net load rating. To the net load rating add 25 per cent for piping and pickup.

If the boiler is steel firetube and predates SBI (or SHBI), the rating is probably on the basis of 140 sq. ft. gross per sq. ft. heating surface; if a modern SBI rating the basis is 170. High pressure boilers can best be sized on the basis of 10 sq. ft. heating surface per bhp. If no catalog data are available on a heating boiler, and comparison with dimensions of a similar boiler not trustworthy, the dealer should compute the building heat loss to arrive at the load.

For any gross heating boiler load, if no overload is known or anticipated, the burner capacity should be 1 gph per 400 sq. ft. EDR. For any high pressure boiler rating, if no overload is known or anticipated, the burner capacity should be 1/3 gph per bhp. If overloads beyond the original ratings of steel boilers (either high or low pressure) are anticipated or known to exist, select the burner on the same ratio according to the known maximum load condition to be met. Whether or not the overload condition can be met depends upon whether it does or does not exceed 200 per cent of the old rule of 140 sq. ft. EDR or 1 bhp output per 10 sq. ft. heating surface. If not in excess of 200 per cent, and the prevailing conditions permit designing the firebox correctly, then the burner can be selected for the overload condition. How the firebox should be designed constitutes the subject matter of the next article of this series.

❖

Brown Instruments searches out additional Engineers

TO MAKE A 40% increase in its engineering staff, Brown Instruments Div., Minneapolis - Honeywell Regulator, Philadelphia, Pa., found it necessary to comb 30 colleges, universities and technical schools because of shortages of engineering manpower. The recruiting campaign resulted in the hiring of 103 additional engineers to meet expanding business, chiefly for industrial process instruments for defense and defense-supporting industries.

Each new engineer, a large percentage of whom are graduates of last December and June, is given an intensive training course in a Philadelphia auditorium hired for the purpose. The first group started training in June, with another and larger group trained during July. The course includes orientation in the Brown organization, in production of new and improved existing process instruments and their application.

During the recruiting period Brown officials ranged college campuses from Maine to Virginia and west to Ohio, in addition to contacting scholastic placement bureaus maintained by the universities.

❖

Ray names Distributor in Pittsburgh Territory

APPOINTMENT of the Petroleum Pipe & Supply Co., 1529 Federal St., Pittsburgh, Pa., as exclusive distributor for Pittsburgh and surrounding territory, has been announced by the Ray Oil Burner Co., San Francisco, Calif.

A. W. Schillinger, president of the distributing company, enjoys a background of 20 years' experience in oil burner installation and service.

5 WAYS TO PROFIT FROM BUNKER JOBS

Simple Arithmetic for Oil Burner Installations!

Thermal Electric is a simple, all-electric system for removing bunker fuel from unheated underground storage and transporting it at 120°F. to the oil burner. Here are five ways Thermal Electric Systems make profits for the contractors who install them . . .

1. Equipment Costs Reduced: Thermal Electric gets rid of steam coils in the storage tank, recirculation, remote pump-sets, multiple suction lines, and all the gadgets that go with them. In bidding, you won't have to pad for unforeseen extra equipment . . . and run the risk of losing the contract. Thermal Electric's simplicity and the ease with which you can figure your exact equipment needs mean safe, accurately figured, competitive bids for Thermal Electric installations.

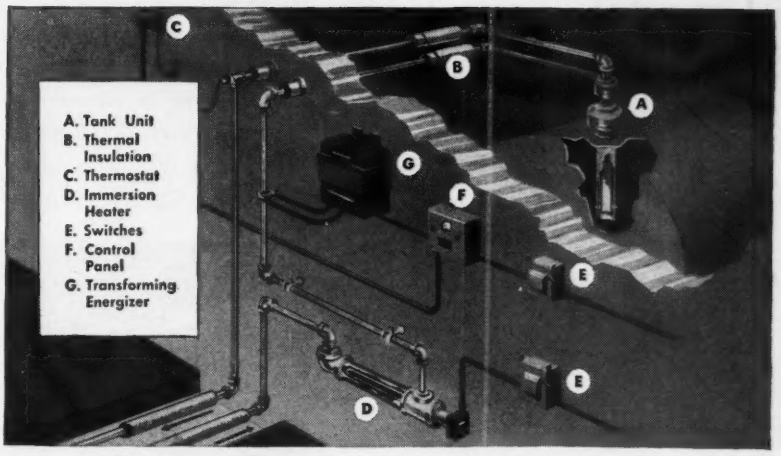
2. Labor Costs Reduced: Conservative figures show that Thermal Electric saves at least *six man-days* per burner as compared to other types of installations. Overhead (taxes, travel, supervision, etc.) for each job is reduced, along with costly overtime. Your men finish each job faster, move on to the next one — particularly important during the busy season. You'll be able to handle more business than ever before, with the same crew.

3. Lower Costs, Lower Bids, More Contracts: These savings enable you to make lower bids or to take greater profits at your usual markup. Or, playing it smart, you can get new business by submitting Thermal Electric as a more efficient, lower priced alternative to any other method you're asked to bid on.

4. Freedom From Service — Guaranteed: Not only does Thermal Electric's performance record prove it, but Fluid Systems *guarantees* it! Read the unqualified guarantee in the right hand column which assures contractors complete protection against service headaches.

Now look at all these other advantages: *No coking* — Thermal Electric maintains steady, accurate heat without hotspots. *No stratification* — Thermal Electric removes fuel from *unheated* storage. The bulk of the fuel stays solid until melted for immediate use. *No more freeze-ups* — Thermal Electric automatically keeps fuel at flow temperature without constant or cycle burner operation. In one case, a Thermal Electric System was unknowingly left on for three years while the burner was shut down. The bunker fuel flowed *immediately* upon starting the burner! (Documented proof available on request.)

5. Good Installations Mean More Business: The contractor who builds his reputation for good, trouble-free bunker oil installations with Thermal Electric will find quality business coming to him — and he won't have to cut his markups to get it. Build for more profits now by getting the Thermal Electric story and the simple cost estimating forms with which you can prepare your bid *in five minutes* for profitable Thermal Electric installations.



THIS IS THERMAL ELECTRIC: Thermal Electric is a completely automatic, all-electric system of transporting #6 bunker oil from unheated storage to the oil burner(s) at 120°F. The Transforming Energizer passes safe, low-voltage current through the pipes carrying the oil. The oil is heated evenly over the entire system —no hotspots or coking. The system can be shut down without draining. Flip the switch — the solidified fuel melts and flows, with no blow-torches!

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Are you overbidding to cover unpredictable items — and losing jobs to lower bidders?

With Thermal Electric, you can plan everything without the "cushion" that often costs you the job. By using our easy cost estimating sheets, you can figure all of your Thermal Electric equipment costs in *five minutes!*

You can't overlook a thing. The simple calculations cover every item for a complete Thermal Electric installation. You do not have to consult us before bidding.

Get these forms and keep them on hand. With them you'll be able to submit fast, accurate, safe bids and land profitable Thermal Electric contracts.

WORKS WITH ANY BURNER

Outstanding Thermal Electric Installations have been made in combination with these burners:

Ray • York • Petro • Johnson • Todd Enterprise • Iron Fireman • Preferred Gilbarco • Superior • Ames • Cyclotherm Rexoil • Hauck • Cleaver-Brooks North American • Ace • Indiana and many others

Guarantee

When installed according to installation specifications, Fluid Systems, Inc. *guarantees* that Thermal Electric will (1) remove #6 fuel from underground storage without auxiliary heat in storage and (2) deliver fuel at 120°F. to each burner connection under all conditions of flow or standby.

What other system gives you this protection?

Send Coupon Now!

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Fluid Systems, Inc., 1881 Dixwell Ave., New Haven 14, Conn.

Please send complete set of Thermal Electric cost estimating forms, plus free descriptive literature to —

*Name*_____

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*City*_____ *State*_____

☐ P.S. Send the proof about that three-year shutdown!

FOC-2

THERMAL ELECTRIC and FLUID SYSTEMS, INC. are trade marks registered in U.S. Pat. Off.

Oilfiring a Rope Works

Providing an interesting Variety of Savings

by

Charles C. Trump, ME*

THE WALL ROPE Works at Beverly, N. J., uses less than 50 Boiler HP of steam for process work and nearly 400 HP for heating their large plant in cold weather.

Five boilers, of which three 125 BHP rating were usable, were fired with soft coal and rope waste by hand. Coal had to be unloaded from cars at one end of the yard, then moved to a storage pile not so far from the boiler room, then delivered in front of boilers by dump car as shown in Fig. 1.

Rope waste has more heat value per pound than coal, due to oil content, but it is not easy to burn without smoke, for the same reason. An effort has been made to find some uses for this waste, but there will always be some of it to be disposed of by burning. A special furnace has been designed for burning waste and oil, but so far this has not been built and a description must wait for a later article. There are many plants where waste disposal is a real problem.

Two of the HRT boilers have been equipped with Preferred Utilities Rotary 4650 RPM Horizontal, Belt Drive Burners as shown in Fig. 2.

A third burner has been purchased, but due to present shortage of Bunker "C" fueloil the third boiler is being fired with coal and waste in the old way.

There has been a decided improvement in steady steam pressure, and a saving in labor and fuel costs which will be greater when all three boilers are oilfired. A good record of coal costs was kept for the season of 1949-1950 so that savings on a degree day basis may be calculated after a full year on oil. Elimination of coal handling alone shows a saving of nearly $9,000 per year.

The location of a 20,000 gallon fuel-oil tank was a problem in this case. The Longest Rope Walk in the World, as shown in Fig. 3, is made of wood and is scheduled to be torn down this summer. But at the time the oil tank was put in, the U. S. Navy decided to ask that it be saved due to trouble in Korea, so that the logical place for the oil tank was not available. A hole had to be dug in sandy soil between buildings, and the tank had to be moved into place with two truck cranes as shown in Fig. 4. An unloading pump is located at a curb over 100 ft. from the tank, and two fueloil circulating pumps, of which one runs continuously, the other being spare, to force oil from tank to burners in boiler room about 150 feet away were installed.

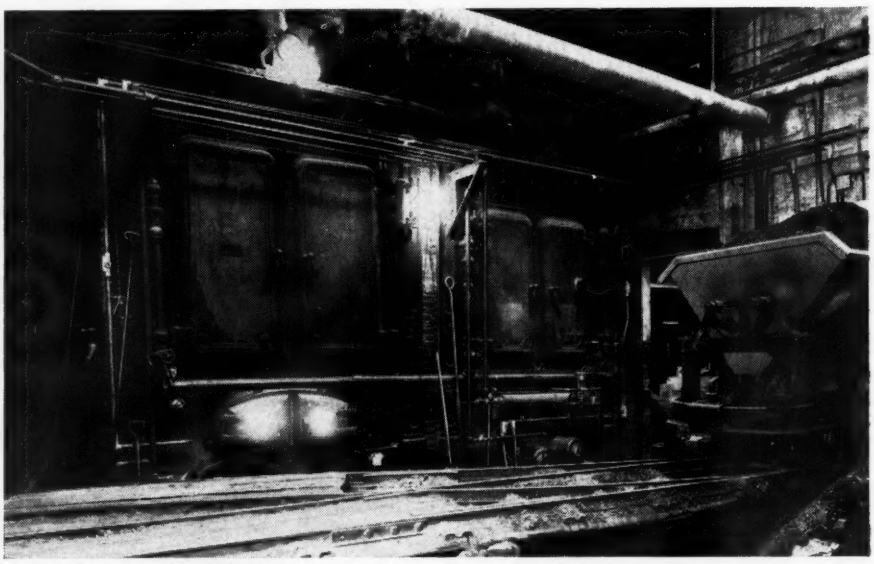


Fig. 1. *Boilers No. 1 and 2 with one oilburner installed.*

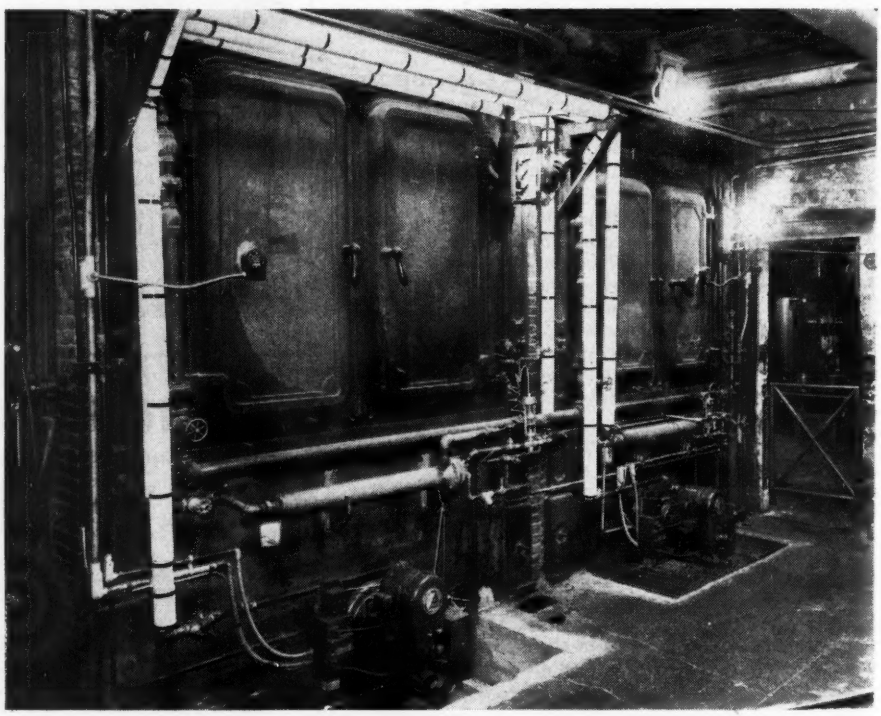


Fig. 2. *Boilers with second burner almost completed.*

*Trump handles heavy oil installations for F. C. Haab Co., Philadelphia, and is a registered professional engineer in Pennsylvania and New York.

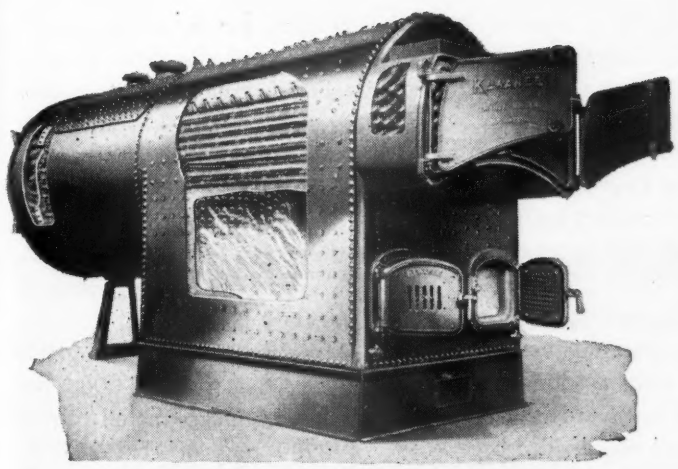
Where health precautions are most needed

NORTHERN INDIANA HOSPITAL
for Crippled Children
One of many outstanding new hospitals which have installed Kewanee Boilers

When *Pohlmeyer & Pohlmeyer, Ft. Wayne and Skidmore, Owings & Merrill,* architects, designed this hospital for crippled children, the type of patients it was to serve demanded a one-story structure.

A one-story building invariably imposes extra demands on the heating system . . . a problem ideally solved by the installation of three oil-fired Kewanee Boilers by O. J. Shoemaker, South Bend.

KEWANEE STEEL BOILERS



Cut-a-way KEWANEE "500" Series for Heavy Duty
Two pass 3″ tubes provide extra economy even with overloads of 50% above rated capacities.

● Although spread over many acres, ample steam for this important project is provided by the "500" Series Kewanees, built for 150 lbs. working pressure, and rated to produce an hourly total of 11 million Btu.

Whether a building is large or small and regardless of the fuel used, Kewanee Boilers insure a lifetime of dependable heat with minimum fuel costs. This important feature, plus extremely low upkeep, *makes Kewanee Boilers most economical to own.*

Ask or write for your copy of the new Kewanee "On the Job" folder which briefly describes a few outstanding Kewanee hospital installations.

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BUILDING BETTER BOILERS OVER 80 YEARS

Serving home and industry
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Figure 3. *World's longest rope walk.*

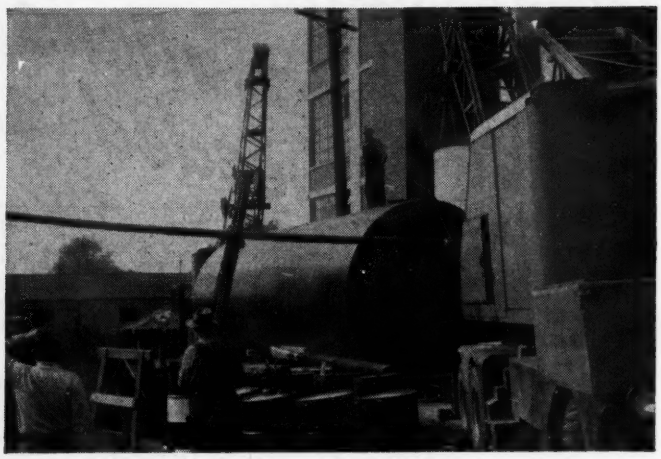


Figure 4. *Truck cranes bring in tank.*

Fig. 5. *Fueloil pumps and piping.*

There are also two identical 7½ HP unloading pumps, one of which is used to unload other oils used in the plant. But either pump may be used for fuel-oil in emergency.

Fueloil pumps and piping are shown in Fig. 5.

As Bunker "C" fueloil is used, there is a steam heating coil in the tank, and steam tracer lines are run along all fueloil lines and insulated with them. The fill line is run under ground in a tile conduit, shown in Fig. 6.

Each burner has its own steam heater and control as may be seen in Fig. 2. Each burner has a dual set of pumps and draws oil from the supply loop kept full by the tank pumps. It also returns surplus heated oil to this loop which helps keep the oil in the tank warm. This is not an unusual arrangement.

Fig. 6. *Tile conduit for fill line.*

The method used to compare coal consumption with Degree Days may be interesting, and is shown in a chart in Fig. 7. It is evident that the summer load is less than 10% of the maximum load in winter, and that the coal consumption follows the degree days for each month closely. Wind is a factor not accounted for by Degree Days, so that this may be the reason for high coal use in March. It will be interesting to plot a similar chart for oil consumption against Degree Days for the year ahead. Such a chart was used in this case and also with a subsidiary company, Schlichter Jute Cordage Co., to show how the load was divided between process and heating (from summer months) and helped to choose the right burner sizes, and to sell them to management.

Having the fuel consumption of a heating plant for any period in which Degree Days are known, it is relatively

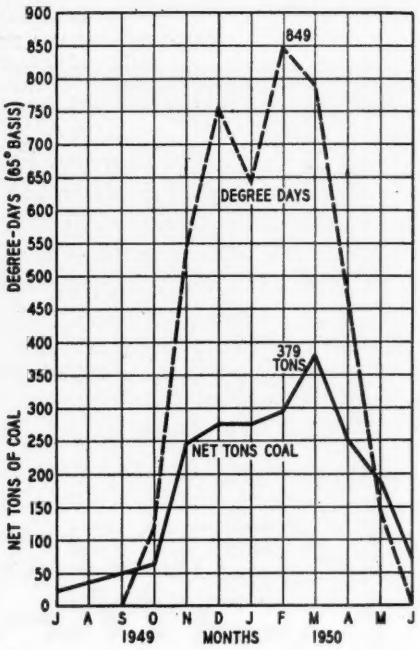


Fig. 7. *Coal consumption vs. degree-days.*

simple to compute the equivalent oil consumption, and the right sizes of burners. For example, we had a record of 2200 tons of soft coal, handfired at Wall Rope Works with efficiency of not better than 45%.

2200 tons of coal with 13,500 Btu × 2000 lb. equals 59,400,000,000 Btu. At 45% efficiency, heat in steam is 26,700,000,000 Btu, on coal.

No 6 fueloil at 152,000 Btu gallon at 75% efficiency puts 114,000 Btu into steam. This makes the oil equivalent of 2200 tons of coal 26,700,000/114 or 234,000 gallons per year.

234,000/2200 is equal to 106.5 gallons of oil per ton of coal.

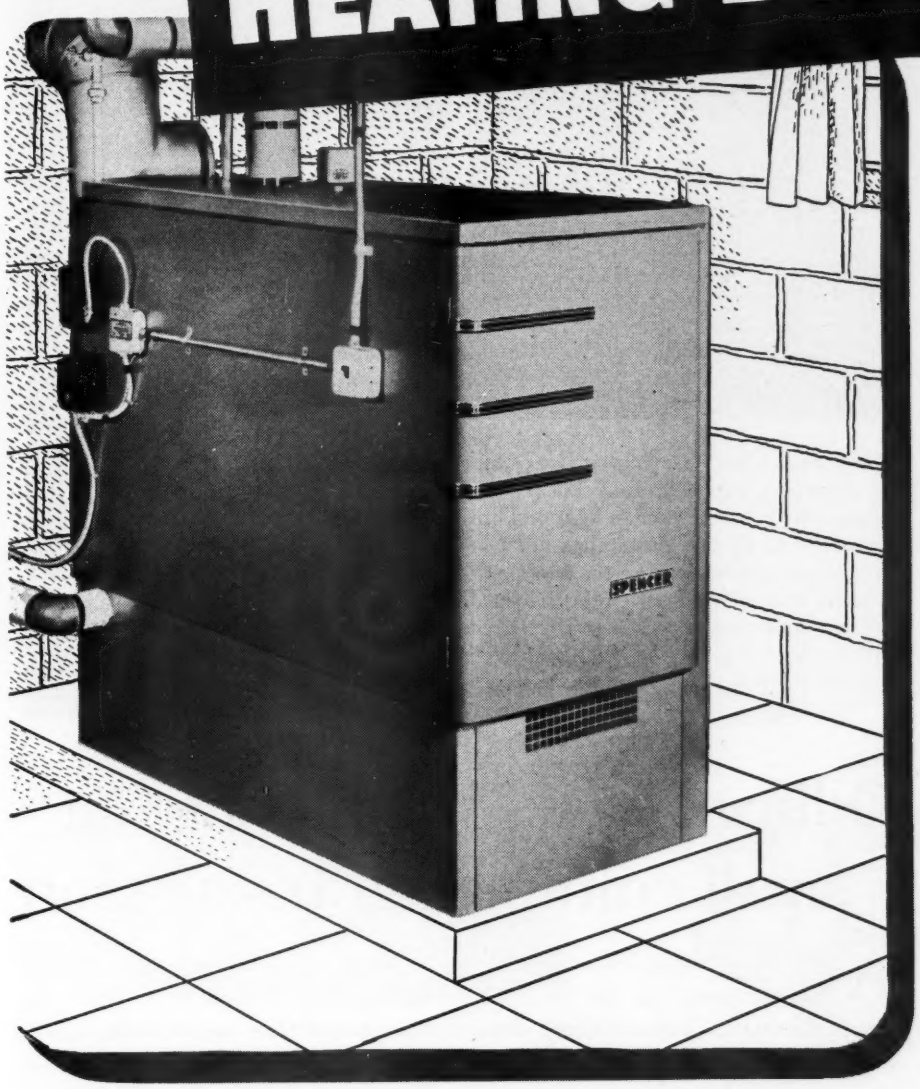
As the season of 1949-1950 had 4552 Degree Days at the International Airport, south of Philadelphia, this

(*Please turn to page* 156)

COMMERCIAL & INDUSTRIAL oilburning

SPENCER

THE QUALITY LINE OF HEATING BOILERS



A popular model in one of the many Spencer Boiler series suitable for homes, apartments, and small commercial buildings. This type is available in capacities from 700 to 3000 square feet, steam.

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There is a Spencer for every building, for every fuel.

Both cast iron and steel . . . a selection of 76 models . . . versatile, dependable, backed by more than sixty years of leadership . . . precision-engineered and manufactured to give superior, *guaranteed* service.

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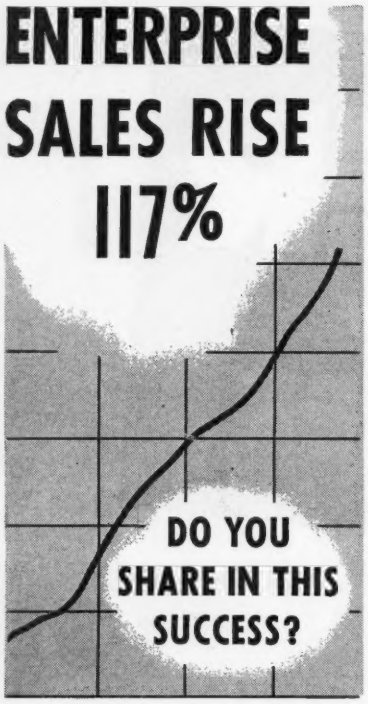
fuel oil & oil heat

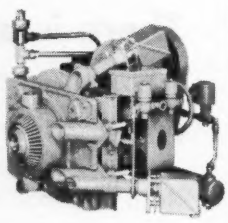
ENTERPRISE SALES RISE 117%



1950 saw Enterprise Burner sales jump to 117% over 1949 —a phenomenal rise compared to the 55% for the industry*. Here's evidence that best shows *acceptance* of the quality Enterprise Burner line—acceptance built through 25 years of practical and dependable engineering experience and advancement. If you are interested in sharing in greater future profits as a successful Enterprise dealer, write for full information.

* Based on U. S. Department of Commerce figures for cumulative totals of commercial and industrial Rotary Atomizing Burners shipped throughout 1949-1950.

Enterprise V-Belt Drive Oil and Combination Oil-Gas Burners are built in 10 sizes, in manual, semi-automatic and full automatic models. Capacities range from 4 to 200 gals. per hour, 12 to 650 boiler hp.

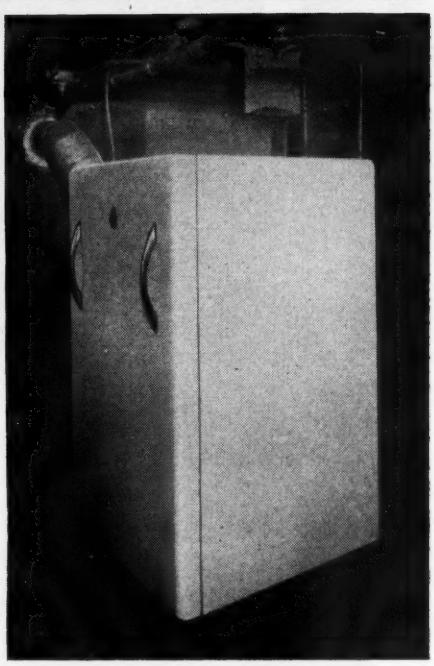


The Choice of Heating Experts

25th Anniversary 1951

Enterprise DEPENDABLE Oil Burners

ENTERPRISE ENGINE & MACHINERY CO.
A Subsidiary of General Metals Corporation
18th & Florida Sts., San Francisco 10, California



Interior *of Great Barrington Diner and a close-up of the National Packet oil-fired unit which furnishes heat and hot water. The Packet distributes hot water to two unit heaters in the basement. Air is drawn from the diner, warmed by the unit heaters and then circulated through grilles in the foot rest step which runs the length of the counter.*

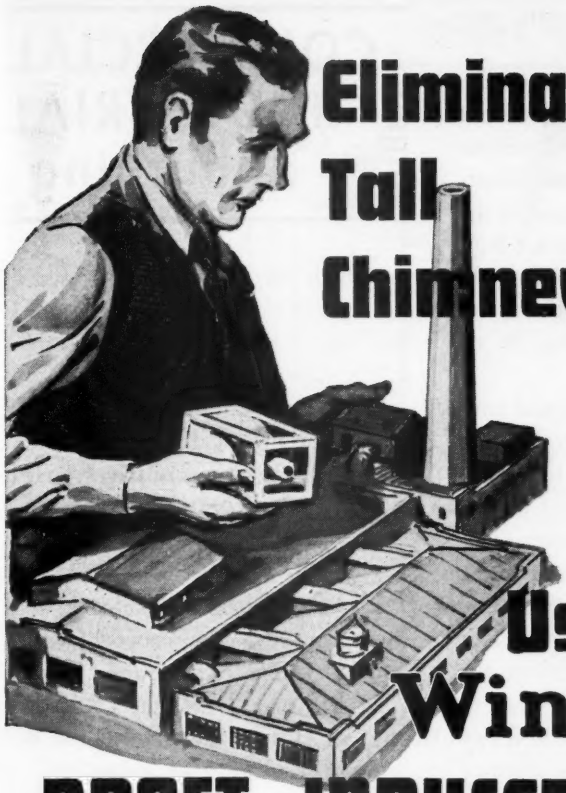
Oilfiring saves half of Cost on small commercial Installation

A $750 INVESTMENT in a new oil-heating plant for the year-old Great Barrington Diner in Great Barrington, Mass., has paid four dividends to owner, B. Manneheimer.

Fuel costs for heating the diner and providing hot water for dishwashing are reduced by more than 50%. Sanitation has been increased by the elimination of flying ashes. More basement space is now available for food storage. The new heating plant, completely insulated with glass wool, has eliminated the former excess heat escape into the basement which had a damaging effect on stored foods.

When Mr. Manneheimer opened this diner last year on U. S. No. 7, the heavily traveled western Massachusetts north-south truck route between Boston, Pittsfield and New York, there was a stoker-fired boiler in the basement. It fed hot water to two suspended-type unit heaters. Ducts brought cool air from floor level to

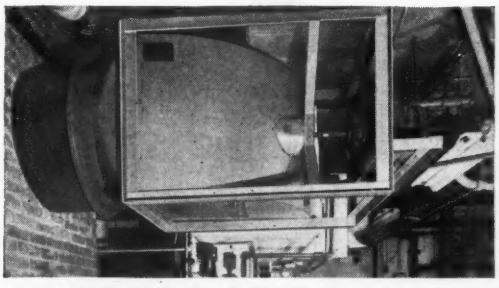
COMMERCIAL & INDUSTRIAL oilburning



Eliminate Tall Chimneys

Use Wing DRAFT INDUCERS

1. Eliminate tall, unsightly and expensive stacks. All that is left is a vent on the discharge.
2. Cut fuel costs. Give higher CO_2's. Less excess air.
3. No smoke.
4. Permit increased capacities.



For all boilers from small commercial heating types, up to 100,000 lb./hr. steam generators.

Write for bulletin or submit requirements

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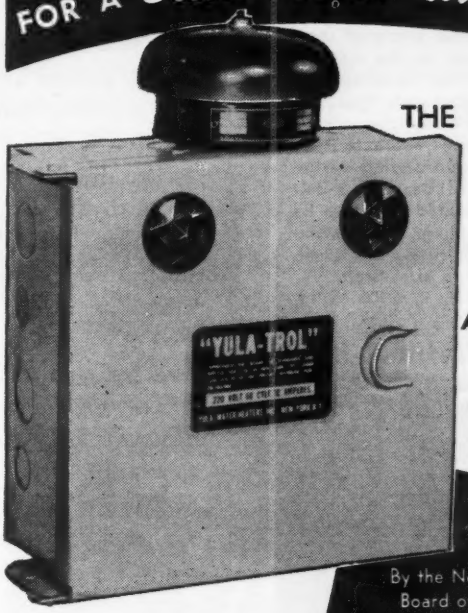
DRAFT INDUCERS

THE Yulatrol

The Approved FUEL OIL DETECTOR!

FOR USE WITH NO. 6 (BUNKER "C") Fuel Oil

Here are the Real Facts ABOUT.. HOW YOU CAN GET Accuracy FOR A Better JOB AT Lower COST!



THE ***YULA-TROL*** RELAY BOX with LIGHTS and ALARM

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A SAFETY DEVICE EVERY HEAVY OIL BURNER INSTALLATION SHOULD HAVE!

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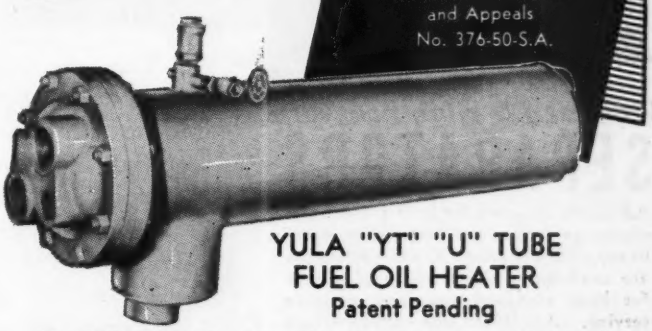
By the New York City Board of Standards and Appeals No. 376-50-S.A.



YULA "YT" "U" TUBE FUEL OIL HEATER

Patent Pending

The YULA-TROL is the safety preheater you've heard so much about! It's a device that almost talks. If an oil leak occurs, it shuts off the burner, rings the gong, turns on the red light! This occurs in just 45 seconds after an oil break. It also functions as a low water cut-off.

Complete oil de-entrainment chamber and a specially designed probe. Combines every safety feature you need for efficient and economical oil heating. CALL ANY CONTRACTOR OR DISTRIBUTOR FOR THEIR OPINION.

Write Today for Catalogue O-29

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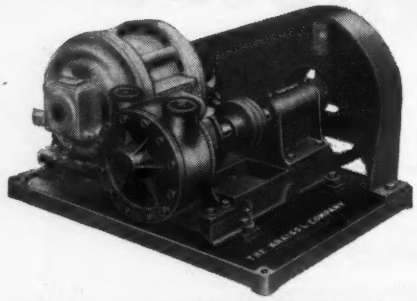
Yula WATER HEATERS, INC.

166 WEST 225th STREET • LOrraine 2-9610 • NEW YORK 63, N. Y.

for Heavy Oil Service



Class 60 PUMPS
pull cold oil!

After many years of outstanding on-the-job performance, the Kraissl "60" pump has been acknowledged as one of the most efficient for heavy oil service. For direct burner service installations—or booster service on pump type burners. Of the internal gear type, the "60" is machined to close tolerances—for maximum vacuum characteristics with heavy oil. The outstanding design advantage is the ball bearing, V-Belt reduction drive-connected to pump by means of loose coupling, which eliminates side deflection from pump shaft. Suction and discharge sizes from ½" to 2". Capacities, 75 to 2100 GPH; pressures to 100 psi.

Write for Bulletin A-1193

Standard & High Pressure
SEPARATORS

Adequate strainers for both suction and discharge service are essential on every heavy oil installation. Kraissl separators are available in single and duplex units for both standard and high pressure service. Available with Underwriters Labels from ¼" to 4"; larger sizes up to 6".

Advantages of our design are: ease of cleaning; and interchangeability of separator baskets—from coarse straining to fine filtration. Cleaning of removable separator baskets restores original efficiency—thus eliminating normally expensive replacement costs.

Ask for Bulletin A-1430

If you have any special problems—or need more information—please write us fully. You will receive a prompt and detailed reply.

KRAISSL CO. Inc.
295 WILLIAMS AVE., HACKENSACK, N. J.

these heaters. Domestic hot water was provided by a kitchen range.

Mr. Manneheimer experienced deficiences in the heating boiler and hot water supply. He investigated various substitutes. Great Barrington oilheating dealer David Grant suggested the installation of a National Packet boiler. This is a completely "packaged" heating unit which, when oilfired, has an SBI net rating of 510 sq. ft. of water radiation.

The National Packet oilfired unit heats water, with an integral pump circulating the water to two unit heaters mounted in the basement of the diner. To each unit heater there are attached a supply and a return duct. Air is picked up in the diner through two grilles, located in the side of the foot rest step that runs the length of the counter.

The air, delivered through these two ducts to the unit heaters, is warmed and then brought back up into the diner through two other ducts. The heated air then is distributed through two other grilles, also located in the foot rest step.

The original boiler and stoker were removed in December, 1950 and the new self-contained heating plant was installed. At the same time, the domestic hot water connection in the kitchen range was disconnected.

Hot water, and then some

Today, the tankless coil heater within the new boiler provides, according to the diner owner, " all the hot water needed, and then some."

Mr. Manneheimer conducted a test on operating costs. From December 29, 1950 to March 2, 1951, the new boiler used 355 gals. of oil. This was an average of 6 gals. of 13¢ oil per day —or a cost of 78¢ a day for building heating and domestic hot water.

Since the Great Barrington Diner serves approximately 100 complete dinners each day, plus about 200 short orders, it is estimated that more than 300 gals. of 160 deg. F. water is needed for daily dishwashing.

Considering the year-round climate in Great Barrington, dishwashing water temperature must be raised an average of 120 degs. F. To accomplish that job, Mr. Manneheimer is spending about 38¢ a day for oil used by the Packet to heat this water, and in the winter months, he spends about 40¢ a day for building heating.

The heating contractor reports the new heating plant, the first of its kind he recommended, was relatively easy to install and is operating efficiently.

COMMERCIAL & INDUSTRIAL oilburning

Watching the Pennies

Mr. Manneheimer comments—"In this business we make profits by watching the pennies. That Packet cost me a lot less than I thought I'd have to pay for a new heating plant. But, using it has saved me about 50% of the money I used to put out for fuel. Then, too, being small, and having a covering around the burner, pump and controls, it looks good down there and does not dirty-up my foodstuffs."

BETTER

because it's different!

RECTORSEAL #2

Proved by 15 years service in the oil fields . . . proved for your industry by 6 years service in all parts of the country Rectorseal is different. Thin in the can, it thickens in the joint to make a perfect, permanently leak-proof seal. SEND FOR FREE SAMPLE! Use it on your next job and prove to yourself that Rectorseal #2 is the finest sealing compound you ever used.

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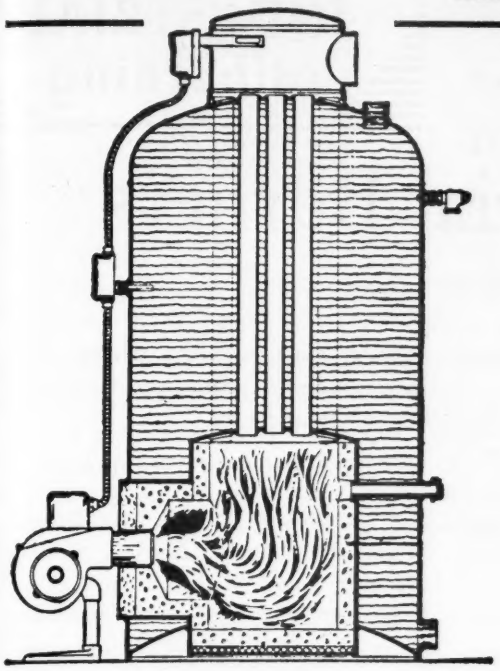
Patented. Trade Mark Reg. U. S. Pat. Off.
NUMBER TWO

THERE'S AN AQULUX MODEL AND SIZE FOR EVERY HOT WATER NEED!



This is the AQULUX 225-VS Model

Capacity: 270 g.p.h. at 100° Rise
225,000 B.T.U. output, 230 gal. Self Storage

AQULUX

WATER HEATERS

give you more gallons of Hot Water for every fuel dollar!

You can sell and install Aqulux Water Heaters with confidence that their performance will measure up to expectations. In private homes, factories and great public buildings all over the world, they have been given the acid-test of time under the most varied and difficult conditions.

Few heating units can match their dependability . . . and still fewer can equal their fuel-saving efficiency. If you have a water-heating problem, it will be well worth your time to check up on the superiority of these famous Aqulux Water Heaters. If you will tell us what you need, we will gladly furnish you with helpful detailed information.

Johnson Oil Burners

Builders of fine Oil Burner Equipment since 1903

S. T. JOHNSON CO.
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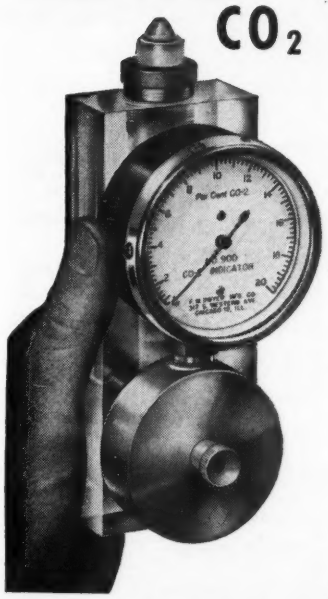
401 No. Broad St., Philadelphia 8, Pa.

Only 20 Seconds for a Complete Test!

The NEW DWYER TRANSPARENT

CO_2 INDICATOR



The Dwyer #900 is a really new CO_2 Indicator that assures greater efficiency and accuracy in operation. It actually takes but 20 seconds to make a complete test—and you can make over 500 tests per refill. Body is fabricated from a transparent solid "lucite" bar, making it practically unbreakable. Open-faced dial is easy to read. Furnished with a circular efficiency slide rule Available in heavy metal case with provision for stack thermometer, draft gage and smoke tester.

Also manufacturers of Draft Gages, Smoke Detectors, Manometers, Pitot Tubes, etc

F. W. Dwyer Mfg. Co.

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PREFERRED Anti-Syphon Valves

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UNDERWRITERS' LABORATORIES, INC.

Permits pumping of oil but closes to prevent syphoning in case of suction line break.

FOR OILS UP TO No. 5
Valves C5 and C10 are available in ⅜" and ½" sizes.

FOR OILS UP TO AND INCLUDING No. 5
Valves B5 and B10 are available in ¾" and 1" sizes. (1" size is built up from ¾" size with fittings.)

FOR OILS UP TO AND INCLUDING No. 6
Valve A is available in 1¼", 1½" and 2" sizes for 5 or 10-foot head pressures.

You can be sure of the best when you order from Preferred, the oldest and the largest manufacturer of anti-syphon valves.

PREFERRED UTILITIES MFG. CORP.
1860 BROADWAY, NEW YORK 23, N.Y.

Low pressure commercial Burners

Concluding a discussion of their Flexibility and Adaptability

by
J. Verne Resek*

THE INITIAL COST of a high pressure gun type burner is less than the cost of an industrial burner, because most high pressure burners are, in the main, assemblies of standard parts which are produced in great quantities and may be sold at low prices. Many manufacturers of high pressure gun type burners operate with very little overhead and as a result, these burners are offered with a low mark-up.

Steam atomizing, high pressure air, rotary cup, low pressure burners, with comparable equipment and controls, are closely in the same price range. A burner which furnishes all the air for combustion instead of relying on stack draft for this air, must use a larger motor and larger blower. Therefore, the cost of the burner itself is slightly higher in this case.

Cost of Installation

In comparing the cost of competitive burners, the completely installed price should be compared rather than merely the price of the burner. Many times a burner is purchased because it is cheaper than another, and later it is found necessary to add several of the following:

Modulating fire control;
Secondary air door;
Boiler plate in front of the boiler;
Additional pitting to allow space for the introduction of secondary air;
Additional piping;
Additional labor and material for piping the gas line for the pilot;
Additional labor and material for wiring controls that are not included with the burner and costs of completing the wiring which was not done in the factory.

A gas meter must be installed in some cases where a gas pilot is required. Where oils that require preheating are used, additional piping and wiring must be provided for the preheater.

The air atomizing burner requires no pitting for secondary air, no secondary air door, no boiler plate, and no gas ignition. It is delivered with full modulation controls, completely wired and piped.

Burning a Number of Grades

It is necessary to consider that at some times, due to economic conditions or during periods when certain grades of oil are in demand because of war conditions, some grades of oil might be temporarily difficult to obtain. It is best to have a burner that can be adapted to burn other grades of oil than the one usually used. An air atomizing type of burner can burn the lighter grades of oil with equal facility, without changes to the burner, and therefore has a distinct advantage under these conditions.

Adaptability to Fire Boxes

A conversion burner may be required for a Scotch Marine, Return Tubular, Water Tube, or any of the others of a great many different designs of boilers, as well as many designs of warm air furnaces. Most burners require an accurate dimension fire box in order to operate properly. If the fire box is too long, the flame pulls away from the burner. If it is too short, there is impingement on the back wall which means incomplete combustion and depositing of carbon. This is also true of the width and the dimension from the burner to the floor of the furnace. There is an advantage in using a burner with very high velocity air, this air going through an air swirler or diffuser with a considerable pressure drop through it. By this means it is possible to hold the fire close to the burner, regardless of the large di-

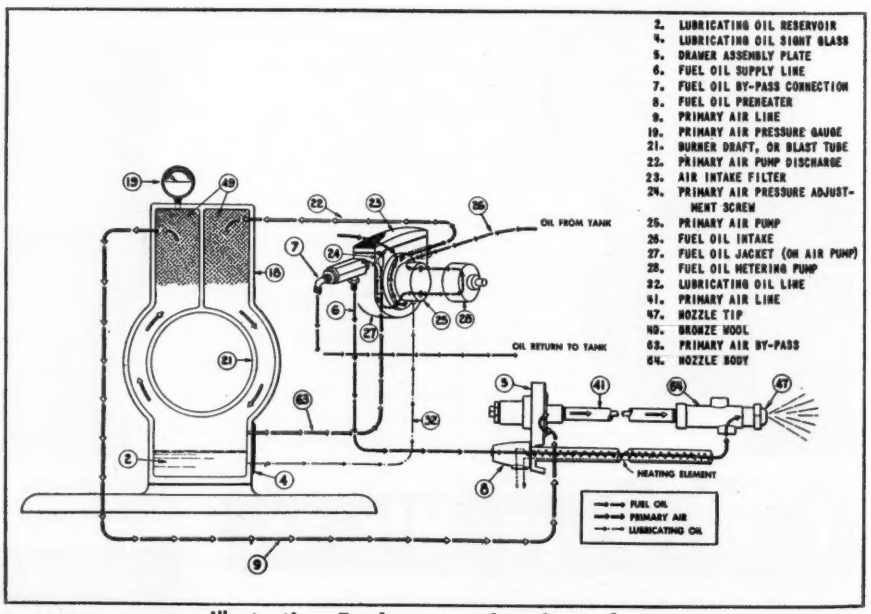

2. LUBRICATING OIL RESERVOIR
4. LUBRICATING OIL SIGHT GLASS
5. DRAWER ASSEMBLY PLATE
6. FUEL OIL SUPPLY LINE
7. FUEL OIL BY-PASS CONNECTION
8. FUEL OIL PREHEATER
9. PRIMARY AIR LINE
19. PRIMARY AIR PRESSURE GAUGE
21. BURNER DRAFT, OR BLAST TUBE
22. PRIMARY AIR PUMP DISCHARGE
23. AIR INTAKE FILTER
24. PRIMARY AIR PRESSURE ADJUSTMENT SCREW
25. PRIMARY AIR PUMP
26. FUEL OIL INTAKE
27. FUEL OIL JACKET (ON AIR PUMP)
28. FUEL OIL METERING PUMP
32. LUBRICATING OIL LINE
41. PRIMARY AIR LINE
47. NOZZLE TIP
48. BRONZE WOOL
63. PRIMARY AIR BY-PASS
64. NOZZLE BODY
OIL FROM TANK
OIL RETURN TO TANK
HEATING ELEMENT
FUEL OIL
PRIMARY AIR
LUBRICATING OIL

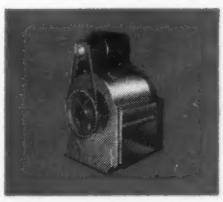
Illustration 5, *showing oil and air flow.*

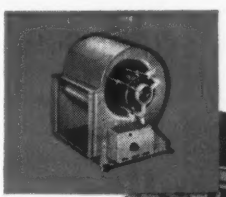
*Manager, Oil Burner Div., Cleaver-Brooks Co., Milwaukee.

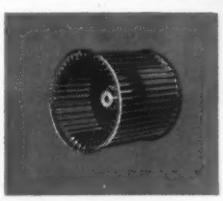
LAU

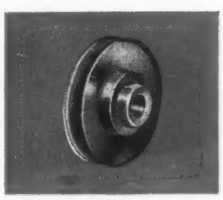
Serving the Essential Needs of Industry through War and Peace

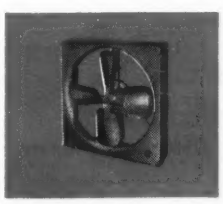
The Lau Blower Company has the plant, the facilities, the equipment, machinery and manpower to meet the needs of essential industry with a wide variety of products. An expansion program will add 65,000 square feet to the 80,400 sq. ft. area now under one roof. This new space, devoted to production and warehouse facilities, will further increase the high position Lau now holds in the air handling industry. Call upon Lau for any assistance you may need.

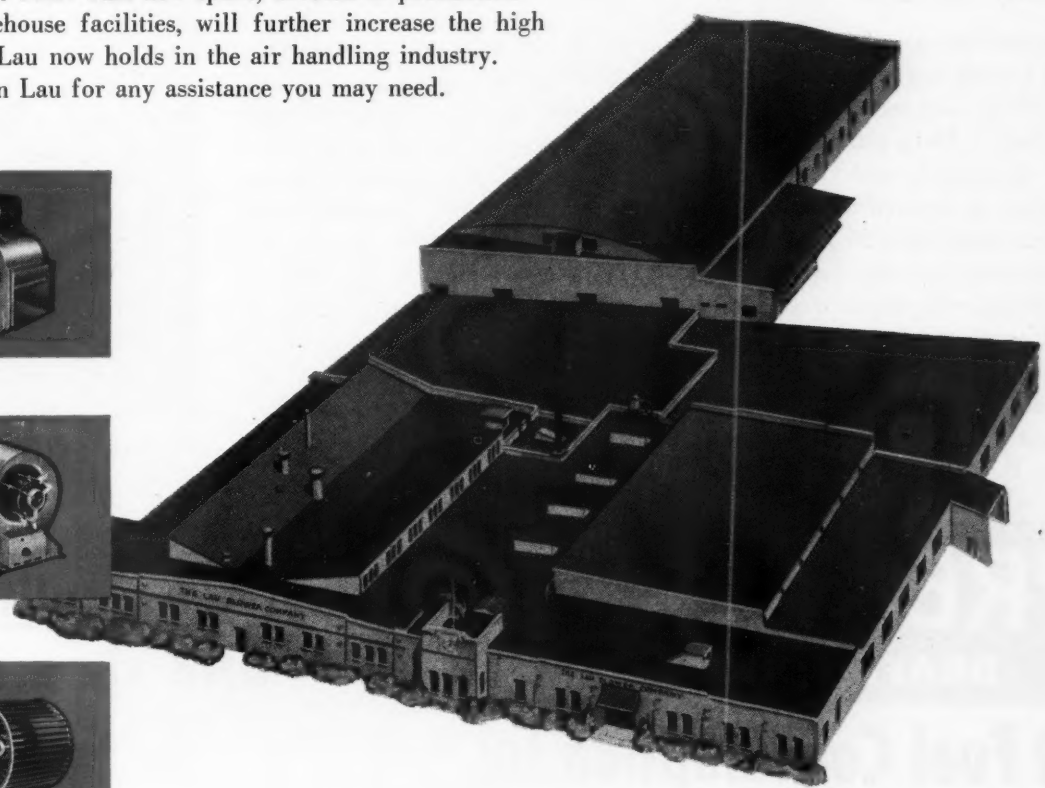












Series "A" Blower Assemblies
the last word in product development, the new, vastly improved LAU Blower Assembly.

A7DD Double Inlet Blowers
a direct-drive 7½" blower with motor built INTO the unit. Entire unit is UL approved.

Series "A" Blower Wheels
spun wheels, center disc or end-suspended wheels, designed for great efficiency, low-cost operation.

Variable Speed Pulleys
"Lausteel" and Cast Iron pulleys allow speed variations up to 30% in many combinations.

Lau "Niteair" Panel Units
a wide range of powerful, quiet exhaust fans, for commercial and industrial uses.

THE LAU BLOWER COMPANY • DAYTON 7, OHIO

World's Largest Manufacturer of Furnace Blowers. Write 2013 Home Ave.

mensions of the fire box. It is also possible to fire into a large dryer or into a Scotch Marine boiler with no bridge wall, and the flame can be held back close to the burner. This means a high efficiency in many types of furnaces without the need of as expensive combustion chambers and bridge walls.

These results can only be obtained with a burner using a blower which furnishes all the air for combustion at sufficient pressure, directly around the nozzle.

Completely Automatic Operation

A commercial or industrial burner used for heating is often required to be as completely automatic as a home heating burner. Many plants use "Day-Night" thermostats with which the temperature is lowered at night and it is expected that when the plant opens in the morning, the office and factory will be heated at the required temperature. Many plants also use a weekend thermostat, allowing the burner to stand idle during the weekend and start automatically early Monday morning. Burners used on process jobs such as heat plating tanks, require that the tanks be at the proper temperature when work commences. To obtain this type of operation it is necessary to furnish a burner that will operate completely automatically without the necessity for an operator to clean spinner cups, or nozzles, or to perform any other manual function before the burner is in operation. In this type of operation the air atomizing commercial and industrial burner is particularly well suited.

Maintenance of the Burner

While plants operating with very large boilers usually have skilled operators capable of maintaining their burners at all times, a small industrial plant, a small dry cleaner, a laundry, church, garage, or apartment house, does not usually have a full-time operator to maintain the burner. It is therefore necessary that a burner be selected which requires a minimum of care and maintenance. In these cases the air atomizing type of burner has a distinct advantage.

(*Please turn to page* 153)

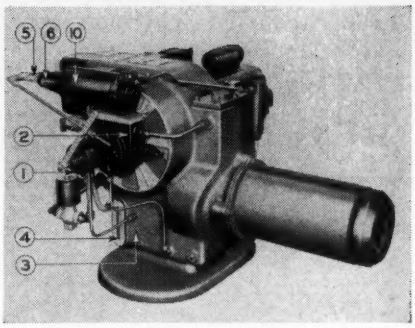
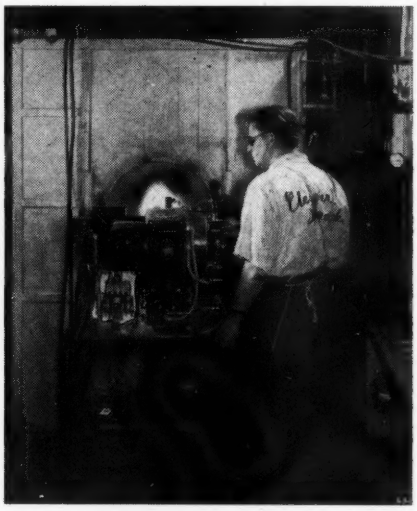


Illustration 4, *components of a Hev-E-Oil burner.*



Fire-testing *a Hev-E-Oil burner before shipment.*

PREFERRED
DRAFT-A-JUSTORS

Cut Fuel Consumption by

10% TO 30%

The *Preferred* Draft-A-Justor is the original, patented Draft-A-Justor . . . improved to include the latest in engineering developments.

Stainless steel bearings and weather resistant metals provide long-life service without breakdown due to rust or wear . . . assure *continuous* fuel savings.

Millions now in satisfactory use.

WRITE FOR DESCRIPTIVE LITERATURE AND TRADE PRICES.

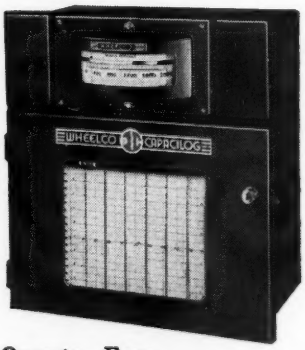
SIZES

Stove, domestic and commercial sizes from 4" to 24" in diameter.

Industrial sizes from 2' x 2' to 5' x 12'.

PREFERRED UTILITIES MFG. CORP.
1860 Broadway, New York 23, N. Y. Boston Office: 839 Beacon St.

Instrumentality with six memories



Now—the Multipoint Capacilog, a direct deflection type strip chart recorder giving up to six variable recordings on one chart has been added to the Wheelco Capacilog line.

Easy to Read—Easy to Operate—Easy to Service. Has all the latest features of Wheelco Instru*mentality*.

Write for Bulletin MPC-1. It gives complete details on the Multipoint Capacilog.

WHEELCO INSTRUMENTS COMPANY
868 W. Harrison Street, Chicago 7, Illinois

wheelco electronic controls

THE *Utica* '1'
BOILER-BURNER UNIT

COMPLETE WITH:

Utica No. 55 Oil Burner, controls and combustion chamber.

FEATURING:

Extra large top nipple giving the perfect location for full capacity tank and tankless heaters with free circulation from all sections.

also

Wet base construction . . . conveniently located controls . . . fully efficient through five sizes . . . for either steam or water . . . made of cast iron, the life-time metal . . . attractive, fully insulated jacket . . . trouble free and easily installed.

UTICA RADIATOR CORPORATION
UTICA, N.Y.

Manufacturers' Activities

Additional Meetings held for Hev-E-Oil Burner Outlets

ON JUNE 26 and 27 the Hev-E-Oil Burner Distributors, Brooklyn, N. Y., held schools at the Granada Hotel for more than 100 dealers. George Knittel, Otto and Charley Gleichmann, officers of the corporation, invited the dealers to hear Howard McCoy, chief engineer, Cleaver-Brooks, Inc., Milwaukee, Wis., explain the basic operating principles of the Hev-E-Oil burner, along with information on installation and maintenance problems.

The second day of the meeting was devoted to sales policies and potentialities, conducted by Frank M. Wymbs, factory sales representative. Also participating in the meeting were: Frank Almond, Minneapolis-Honeywell and John Burns, Mercoid.

George Knittel, *president, Hev-E-Oil Burner of Brooklyn, N. Y., discusses equipment with Frank Wymbs, Jr., right, vice-president of New York State Hev-E-Oil Burner distributors.*

On June 29, a similar school was conducted at Public Service Co., Bronx, N. Y. Other sessions are being held at Albany, Rochester, Syracuse, Lake Placid, Buffalo, and Toronto.

R. E. Michel Catalog of oilburner Supplies

CATALOG NO. 102 has been prepared by the R. E. Michel Co., Baltimore 2, Md., with branches in Washington, D. C., and Richmond, Va. Copies will be sent to dealers or other interested parties upon receipts of requests on company letterheads. The catalog's 142 pages contain a complete array of practically everything that is used on oilburning equipment, with current trade prices for new and rebuilt parts. A cross-indexed list in the front of the book shows each item alphabetically and also by trade name.

The book has been arranged so that all makes of controls, pumps, transformers, motors and other accessories are grouped together, accompanied by specifications and other pertinent data. Four pages contain transformer replacement data by make of oilburner, showing body and base plate designations and net prices. Service and installation kits also are included.

A separate section contains similar information on gasheating accessory equipment.

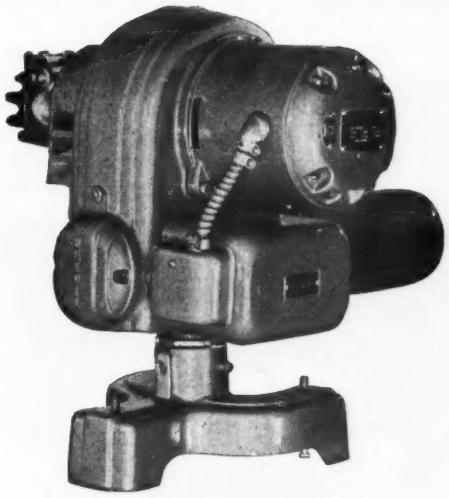
Williamson announces Plans for consumer Advertising

AN EXTENSIVE advertising campaign in national home publications is being undertaken by the Williamson Heater Co., Cincinnati 9, Ohio. Schedules in *Better Homes & Gardens, House and*

• BIGGER PROFITS
• LOWER INVENTORY
with the 'One Package'...
KANTLEAK
OIL TANK KIT

Custom Designed
16 SIZES FOR EVERY NEED
Complete
★ SIMPLE TO INSTALL ★ COMPACT ★ LOW COST
A trouble-free installation Kit that will balance your stocks, reduce slow moving parts in your bins and cut sales time to a minimum. Dealers already supplied report no sales resistance... The Kantleak 'one package' Kit meets with instant approval. Filter approved by Underwriters' Laboratories for No. 1, 2 and 3 fuel oil.
— SEE YOUR LOCAL JOBBER OR WRITE DIRECT —
ABC
KANTLEAK PRODUCTS
ANDERSON BRASS CO.
5305 TWELFTH STREET · DETROIT 8, MICHIGAN

HERE IS A PICTURE OF A DEALER WHO STOPPED...

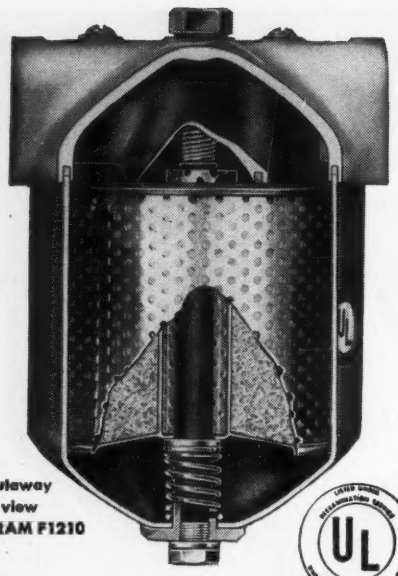


to Reconsider!

This dealer has reconsidered his entire selling and servicing position. He's going to switch to REXOIL burners! Why? Because, with the "price" burner he was selling, service calls have cut his margin of profit steadily . . . and, if the trend were to continue he would soon be *losing* money. That's not to mention all the headaches he has received . . . with scarce labor . . . hard to get parts . . . and irate customers. He realizes that REXOIL'S *dependability* is not idle talk, — it's proven fact. He has learned this from his own experience . . . he has seen Rexoil burners run at peak efficiency and perform smoothly, year after year, with only routine maintenance. And he knows, too, that the dealer who sells REXOIL builds customer confidence and opens the door to further sales. Now is the time to reconsider your selling and servicing position, — write today for further information about Rexoil's dealer plans.

REIF-REXOIL, INC., 37 CARROLL ST., BUFFALO 3, N. Y.

fuelone oilheat



Cutaway view FRAM F1210

Cut Nuisance Calls-Save Money-Boost Profits with . . .

FRAM FUEL OIL FILTERS

Filters the oil clean through an entirely new development • Removes dirt, rust, scale, water • Assures steady flow of clean oil to the burner • Protects pump valves and nozzles • Reduces service expense and needless, troublesome calls • Easy to install • Replacement cartridge builds repeat profits • Available in capacities of 2000, 4000, 6000 gallons of oil consumed per year. Send for complete details. Find out how you can profit with Fram.

FRAM FILTERS

MAIL COUPON NOW

FRAM CORPORATION
Providence 16, R. I.

Please send me complete details about Fram Fuel Oil Filters for Oil Heating.

NAME----------

COMPANY----------

ADDRESS----------

Garden, House Beautiful and *Successful Farming* will present the Williamson story to six million urban and farm families, 90% of whom are homeowners.

"Heat to your heart's content," is the theme of the advertising, which highlights the wide selection of furnace sizes offered for new or old homes, and points out, "There's a Williamson dealer who'll be pleased to show you how easy it is to put your home in a summer-time mood — all winter long." Cooperative advertising also is being made available to dealers in approximately 300 newspapers throughout the country.

Other regular Williamson dealer helps include point-of-sales display material, training school for heating sales engineers and field representatives who regularly assist dealers in their sales efforts.

Hauck Catalogs cover Industrial Equipment

CATALOGS, which are available on request from Hauck Mfg. Co., Brooklyn 15, N. Y., furnish detailed information on its line of industrial oilburners and accessories. Catalog No. 704A discusses the Micro-Cam oil valve, for use where accurate, manual or automatic regulation of oil flow is desired. It features a cam with a knife edge rotating against a V-slot in a flat plane to govern the degree of opening. A series of photographs and drawings illustrate the operation of the valve, show the path of oil flow through it and give dimensional data. A capacity table is included.

Catalog No. 709 covers Hauck electric oil heaters for heavy fueloil and featuring automatic control of oil temperature. Drawings depict methods of installing the heaters in vertical and horizontal positions, with various types of heaters pictured, their features and applications described. A table furnishes oilheating rates and capacities for 23 models of heaters available, ranging from 2 to 60 kw heater ratings.

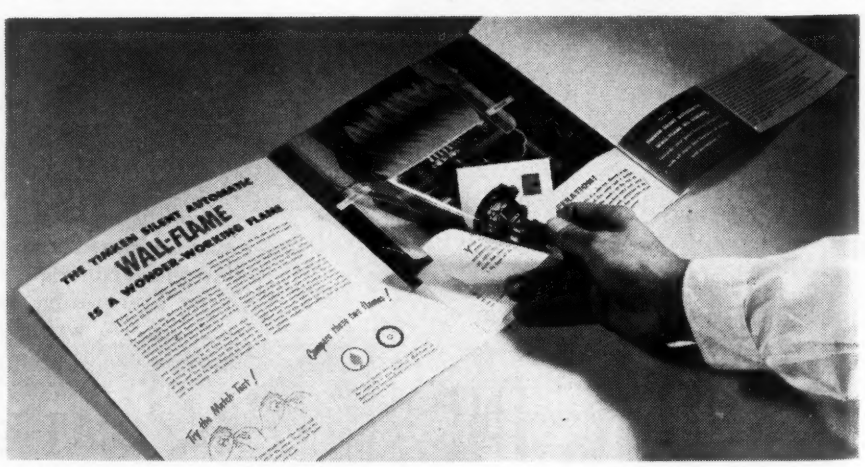
A third catalog, No. 456, tells the story of venturi high pressure atomizing oilburners, with illustrations highlighting construction and operating features. Explanatory copy points out suggested uses and applications; specifications tables detail capacities at various atomizing pressures.

Weir-Meyer follows up Dealers' Prospects with factory Mailings

AN UNUSUAL direct mail program has been developed by The Meyer Furnace Co., Peoria, Ill., to follow up local prospects of dealers after the initial call has been made. Each Weir-Meyer dealer receives forms on which he sends in names of prospects whom he has not closed on the first call. The

. . . . . .

This new *Build-a-Burner Book, now being used by dealers of the Timken Silent Automatic Div., Timken-Detroit Axle Co., Detroit 32, Mich., dramatically illustrates "There's no flame like the wall-flame." Produced in 5-colors, the 9-page book has three full-color transparent pages which allow Timken salesmen to show prospects the step-by-step installation of the burner. Text points out the benefits of automatic heat in general and the advantages of Timken Silent Automatic Wall-Flame oilheating in particular. Factory and dealer personnel are reported enthusiastic about the book.*



Approved for GAS!

Approved for OIL!

Luxaire®

HEATING AND AIR CONDITIONING UNITS

AVOID lost sales!

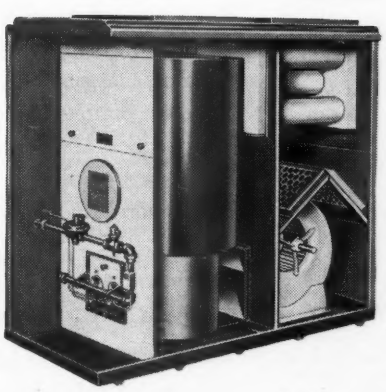
AVOID delays!

AVOID frozen or slow moving inventories with *Luxaire!*

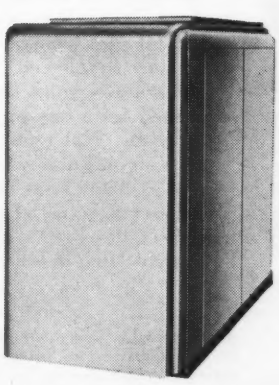
YOU can be independent of fuels with most Luxaire Furnaces and Air Conditioning Units because they have been designed to burn either Gas or Oil with equal efficiency! Luxaire Units with Luxaire Gas Burners carry the A. G. A. seal of approval . . . The same Luxaire Furnaces and Air Conditioning Units with Underwriters Laboratories approved Luxaire Oil Burners are equally as efficient as the Gas Fired Units!

. . . INSTALL the furnace NOW without the burner!

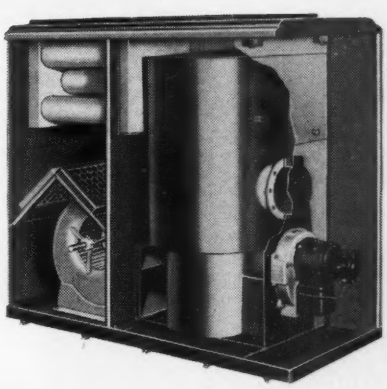
Wait until cold weather arrives before you decide on Gas or Oil. OR—INSTALL OIL *NOW* and CHANGE TO GAS anytime in the future—OR INSTALL GAS *NOW*, and CHANGE TO OIL anytime in the future.



The Luxaire Gas Fired basement air conditioning unit.



Front view of Luxaire basement air conditioning unit.



The Luxaire Oil Fired basement air conditioning unit.

THE Luxaire C. A. OLSEN MANUFACTURING COMPANY • • ELYRIA, OHIO

HEATING & AIR CONDITIONING UNITS

Fuel Oil & Oil Heat

OT*
SERVICEMAN SAYS —

"One look and I can tell whether the unit is arranged for one pipe or two pipe system!

"There's nothing like engineering a product for the convenience of a serviceman. Here's an example of what I mean—Webster Electric Fuel Units are so marked that I can take one look and I know if it is arranged for a one-pipe or two-pipe system. Not guess work. There it is—you know where you stand at a glance. That's why I specify Webster Electric. I feel their units have been designed with me in mind. Try them—you'll see what I mean."

*Old Timer

An identical unit is made for sale in Canada by Canadian Acme Screw & Gear, Ltd. of Toronto, under license by Webster Electric Company, Racine, Wis. Established 1909.

WEBSTER ELECTRIC
RACINE • WISCONSIN

"Where Quality is a Responsibility and Fair Dealing an Obligation"

information includes names, addresses, the type of fuel the homeowner wants to use, the series furnace being offered and whether it is forced air or gravity circulation. The dealer includes his own name, address and phone number.

The same day that Meyer receives the form, the first letter is sent to the prospect, giving the prospect some information about Weir-Meyer furnaces. Three days later a second letter is mailed to the same prospect, designed to build up the dealer. The letters come from the factory, but include the local dealer's name and address and are sent by first class mail. Copies of the letters go to the dealer who submitted the names so that he knows when the letters are received and can arrange to follow up with a personal call. The mailings are made at no charge to Weir-Meyer dealers, and more than 50% of them have taken advantage of the offer, most of them using it on a continuing basis.

Heating System Modernization covered in Honeywell Booklet

DESIGNED TO HELP homeowners who are remodeling their heating systems during the summer months, the Merchandising Div., Minneapolis-Honeywell Regulator Co., Minneapolis 8, Minn., has announced a booklet, entitled "How to modernize for comfort."

The illustrated booklet reviews new trends in home heating, such as zone control, and explains in understandable terms the advantages of automatic day-night thermostatic control and electronic control systems that use an outside thermostat to anticipate weather changes. A question and answer section answers some of the most common complaints and misconceptions about home heating.

Kresno-Stamm Catalog for Equipment, Accessories

CATALOG NO. HE51 has been published by the Kresno-Stamm Mfg. Co., Palisades Park, N. J., covering the complete line of gas and oilburning equipment and accessories which the company is offering. The catalog has been sectionalized into ten parts, each dealing with specific types of equip-

ment. For example, all controls have been grouped in one section, along with information on available models. In the same way, circulators, pumps, valves, filters and other accessories have been arranged so that details of available types can be obtained quickly. An alphabetical index facilitates the location of individual products.

Seven pages in the beginning of the booklet contain installation and service data on vaporizing and pressure type burners. The complete line of range, vaporizing, horizontal rotary and pressure type oilburners available from Kresno-Stamm is pictured and described. Boiler and furnace units, as well as steam generators, commercial ranges, floor furnaces, water and space heaters also are reviewed.

Magnaflow Pump buys Alliance Industries

MAGNAFLOW PUMP CORP., Huntingdon Valley, Pa., has purchased a controlling interest in Alliance Industries, manufacturers of Magnaflow circulators. This marks the beginning of an expansion program to build up production and sales facilities of the circulating pumps in commercial, industrial and heating fields.

Carl S. Yung has been elected president, Herman Veit is treasurer, Howard T. White has become secretary, succeeding D. P. Litzenberg, named chairman of the board of directors.

Toridheet holds sales-engineering Meeting

A THREE DAY CONCLAVE of the Toridheet dealers in the Philadelphia trading area took place June 11, 12 and 13th, at the sales rooms of the John A. Connelly Co., 4308 North Broad St., Philadelphia, Pa. A group of 52 men, dealers and their technicians, attended the daily meetings. They were instructed in detail on the installation and maintenance of the Toridheet rotary wall flame burner. They also listened to discussions of the engineering and sales features of the company's line of other heating equipment.

Luncheon and refreshment were

OT* SERVICEMAN SAYS—

"Ample outlets—

I can bring my wires in conveniently!

"It's sure grand not to have to worry about bringing wires into a Webster Electric transformer. I know from the start that I can handle practically any type of condition, so I don't worry about it—I just specify Webster Electric transformers. Here's another thing—The opening is large enough so that I can easily reach in and make all my connections without being in cramped quarters. Try them—you'll never use any other."

*Old Timer

Webster Electric Company, Racine, Wisconsin, Established 1909.

WEBSTER ELECTRIC

RACINE ◆ WISCONSIN

"Where Quality is a Responsibility and Fair Dealing an Obligation"

supplied daily by the host, Mr. John A. Connelly, distributor for southeastern Pennsylvania. This meeting was under the co-direction of Mr. J. A. Lappin, eastern district representative, and Mr. Duane W. Rouse, national service manager.

A-P Controls marks twentieth Anniversary

A-P CONTROLS CORP., Milwaukee 25, Wis., which began in 1931 as the Automatic Products Co. in crowded second-floor factory quarters, is celebrating its 20th anniversary. From its modest origin it has grown to a company that now has two Milwaukee plants, a Canadian branch in Cooksville, Ontario.

The company manufactures controls for gravity-fed oilburners and is the largest producer of oil-level space heater controls, with another division turning out refrigeration controls, including solenoid valves. In addition, new types of gas furnace and heater controls have been developed recently.

In the winter of 1936 the firm moved to its present site on Milwaukee's north side, and during World War II added a second building. Recently, purchase of a 60-acre tract of land on the outskirts of Milwaukee was completed and it is the intention some day to consolidate the entire operation there under one roof.

A-P Controls operates a system of authorized service stations that now numbers 44, with factory-trained personnel to repair and service all types of A-P controls. The system was begun about three years ago and has virtually eliminated the practice of sending controls back to the factory for repair and maintenance.

Roy W. Johnson founded the company in 1931, his brother, S. A. Johnson, is vice-president in charge of manufacturing and E. A. Valee, executive vice-president, who has been with A-P for 17 years, directs sales and advertising.

Petroleum haulers have long wanted an air-operated emergency valve. Here it is—and every bit as fine as all the other Philadelphia Valve products, which have served the industry for so many years.

This is a compact elbow-type valve, made in both 3" and 4" sizes. There's nothing to rust or get out of kilter. There's no stuffing box to be repacked or tightened. You can mount the valve on any tank truck equipped with air brakes; it will never interfere with normal brake operation. Air cylinder can be removed as a unit. Compact control mechanism can be conveniently located at side or rear of truck. Finger-tip operation gives instant, full flow.

The bonnet and piston assembly can be removed, in a matter of minutes, with the use of an extractor wrench which is operated through the manhole cover. This type of bonnet eliminates the necessity of steaming and getting into the tank in order to replace the disc. It saves many costly hours of servicing time! (Our mechanically-operated emergency valves also provide this feature.)

Two types: Multiple (any single valve or combination of valves can be opened at one time); Massachusetts (only one valve can be opened at one time).

This valve is one more reason why you'll want to *standardize* on Philadelphia Valve Company equipment—first in the industry for economy, fast unloading, safety, long life, trouble-free performance. Send for catalog 170 for description of the full line, illustrated with engineering drawings.

PHILADELPHIA VALVE COMPANY

3413 ARAMINGO AVENUE, PHILADELPHIA 34, PA.

PACIFIC COAST DISTRIBUTORS • Oil Marketing Equipment Co., 325 Fremont Street, San Francisco 5, California
Howard Supply Co., 5125 Santa Fe Avenue, Los Angeles 11, California

Brown data sheet on diaphragm motor Valves

SPECIFICATION SHEET No. 416-1 covers air-operated, three-way diaphragm motor valves made by Brown Instruments Div., Minneapolis-Honeywell Regulator Co., Philadelphia 44, Pa., including theory, applications and engineering data on deluxe and medium-priced models.

Mixing and diverting services for which three-way valves are employed are described, as well as the type of disc and mode of control used for these services. Technical data on materials, body pressure ratings, maximum differential pressure or drop and flow-lift characteristic chart are shown.

York-Shipley gets Award for newspaper Advertising

A SERIES of York-Shipley national newspaper advertisements has been judged best by the National Advertising Agency Network and the company has received the group's highest rating, its Premier Award. Prominent advertising executives judged more than 315 entries of national manufacturers in competition sponsored by the group of 30 advertising agencies.

The award was made at the 20th

OIL HOME HEATING

THE G-E AIR-WALL HEATING SYSTEM

G-E "Climate Engineering" helps shift sales of G-E Oil Furnaces into high gear with new-type heating. G-E *Air-Wall* System provides both forced warm air and radiant heat. Small ducts, compact registers cut installation costs...give floor-to-ceiling comfort.

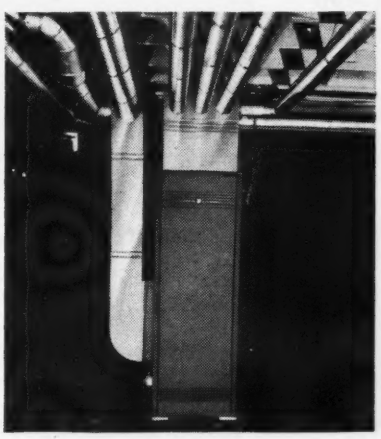
Typical of the new product developments by G-E "Climate Engineers" is the amazing G-E *Air-Wall* Heating System which helps sell G-E Oil Furnaces.

Home owners acclaim its benefits: balanced heating comfort, small, unobtrusive ducts for more attractive basements or utility rooms, and new freedom in furniture placement. The *Air-Wall* System is well suited to defense housing.

Another new G-E development is the specially designed G-E Residential Air Conditioner (Type FE) combined with a G-E Oil Furnace (Type LB) for economical winter-summer comfort. It is being introduced in selected markets.

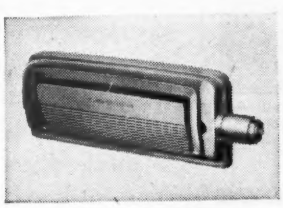
These and many other new heating and cooling ideas are told to millions each month by impressive national advertising designed to make prospects "look at G. E." before they buy. G-E dealers can take pride in the G-E name and G. E.'s *single responsibility*. Their selling efforts are always backed by persuasive sales promotion and complete sales training available to G-E dealers and their salesmen. Write today for information on G-E *Air-Wall* Heating System. General Electric Company, Air Conditioning Division, Bloomfield, N. J.

BABY SPENDS A LOT OF TIME ON THE FLOOR. That's one reason why General Electric's Climate Engineers' developed *Air-Wall* Heating with its specially designed register that operates in the same manner as the windshield defroster in your car. Warm air is directed upward along cold outer walls, warms them so that heat is radiated.



AIR-WALL IS EASY TO INSTALL. Here's a typical *Air-Wall* duct installation. Notice how small ducts allow more headroom.

EASILY FITTED TOGETHER. *Air-Wall* ducts are 4" in diameter. Adjustable elbows allow movement from 0° to 90°.

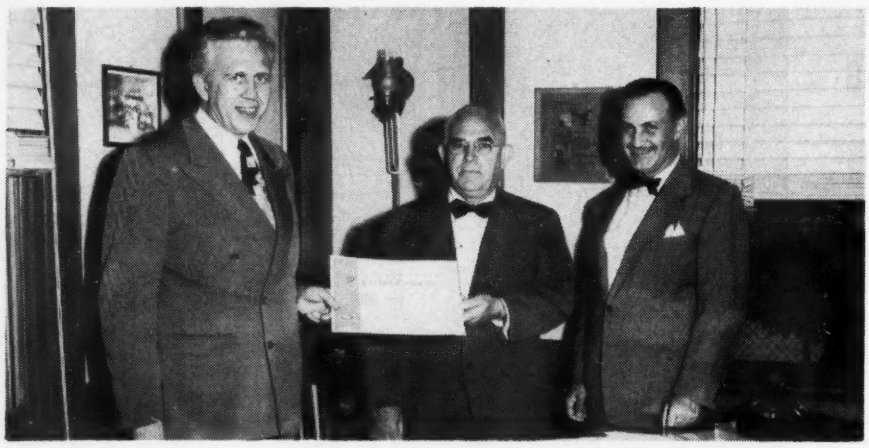


AUTOMATIC *AIR-WALL* REGISTERS have a built-in thermostat which operates a damper to modulate flow of warm air to compensate for factors which create special heat regulating problems.

You can put your confidence in—

GENERAL ELECTRIC

fuelfoil oilheat



Annual Conference of the agency network at Highland Park, Ill., attended by W. H. Long, president, and John R. Adams, vice-president, The W. H. Long Co., York, Pa., advertising agency, which prepared and placed the campaign.

In the picture, S. H. Shipley, president, York-Shipley, Inc., York, Pa., accepts the certificate of Premier Award from Mr. Adams. David Wepman, York-Shipley merchandising manager, is shown at the right.

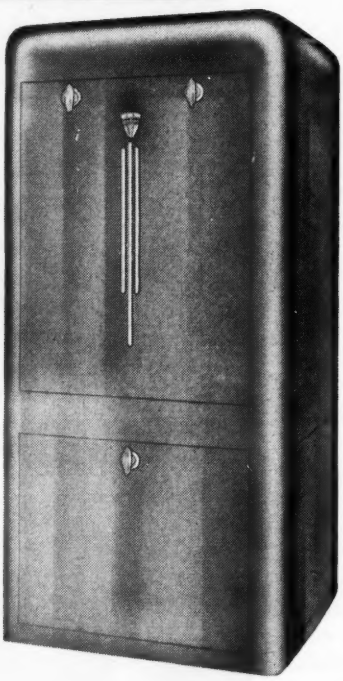
SILENT SIOUX

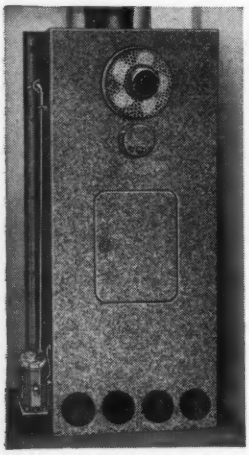
Silent Sioux

beats your competition

Winter Air Conditioner

Year after year Silent Sioux beats your competition on PRICE, QUALITY, PERFORMANCE, FEATURES and STYLING. The Silent Sioux "Complete Package" Winter Air Conditioner has 85,000 BTU output . . . will heat the larger 7 room home . . . has forced draft burner . . . forced circulation at 1200 CFM . . . finished in attractive gray hammertone. Comes complete—burner, blower, belt, pulleys, limit control, fan switch, oil control, fused entrance switch, wall thermostat and draft regulator—one "Complete Package" reduces inventory, simplifies installation. All-automatic operation delivers air-conditioned heat at a constant, even temperature.

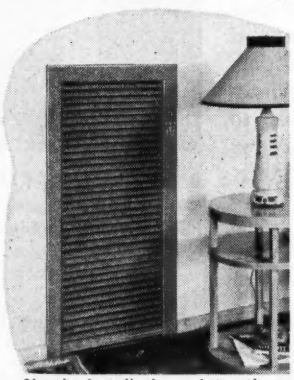




Heater is in utility room or alcove with all controls and access doors readily accessible for cleaning and servicing.

NEW...in the wall Oil Furnace

An ideal heating system for small and medium sized basementless homes. Equipped with the famous Silent Sioux "Triplex" burner. Thermostatically controlled forced circulation . . . 44,600 BTU/hr. . . . 7" general purpose fan . . . finished in smooth brown hammertone. Dangerous temperatures prevented by extra limit switch feature. Easier to install and service than a floor furnace.



Simple installation. Attractive louvered wall plate and oil control knob is all that shows in living area.

For greater sales and beat your competition too, stock up with Silent Sioux, write:

Silent Sioux Oil Burner Corp., Orange City, Iowa

Morrison publishes perimeter Heating Manual

PUBLICATION of a condensed manual, worksheet and photographic story on perimeter radiant warm air heating has been announced by the Mor-Sun Furnace Div., Morrison Steel Products, Inc., Buffalo, N. Y. It contains suggested design procedure and construction details for perimeter or spider systems as applied to single story slab-on-ground houses of not more than 60,000 Btu/hr heat loss. Copies are available to dealers in quantity lots at nominal prices.

Procedures outlined are based on the company's field experience and on information gathered from the National Warm Air Heating and Air Conditioning Association, including typical heating system layouts, charts for heat loss measurement, register, return air branch and intake sizing, plenum construction, underslab preparation and slab construction. The information shown on furnace installation covers controls and system balancing.

White-Rodgers distributes Sheets on primary Controls

INSTRUCTION SHEETS for primary oil-burner controls made by White-Rodgers Electric Co., St. Louis, Mo., have been distributed, with separate sheets covering types for intermittent ignition and constant ignition. Complete specifications for each type are shown, including explanations of the principles of operation and functions. Described is the operation of a normal cycle, and operation during power, ignition and flame failure.

Inside pages of the 4-page sheets contain instructions for installation,

NOW! SAVE UP TO 25%

on . . .

COAL . . . OIL . . . and OTHER TYPES of FUEL with Improved, New

WALKER

FUEL-SAVER DRAFT REGULATORS

Over 7 Million Now in Use!

Why not help *your* customers save as much as one-fourth on fuel costs . . . yet enjoy *more* efficient heating performance! Doesn't matter what they burn, either. New, improved Walker Fuel Savers assure maximum combustion with *any* type fuel . . . under *all* stack conditions. This means *even* heating, prevents costly "up the chimney" heat loss. There's a quickly installed, easily adjusted Walker Regulator to fit every make heating unit.

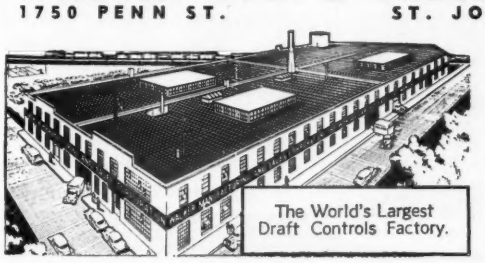
Model BB

Model BB

COMMERCIAL and INDUSTRIAL

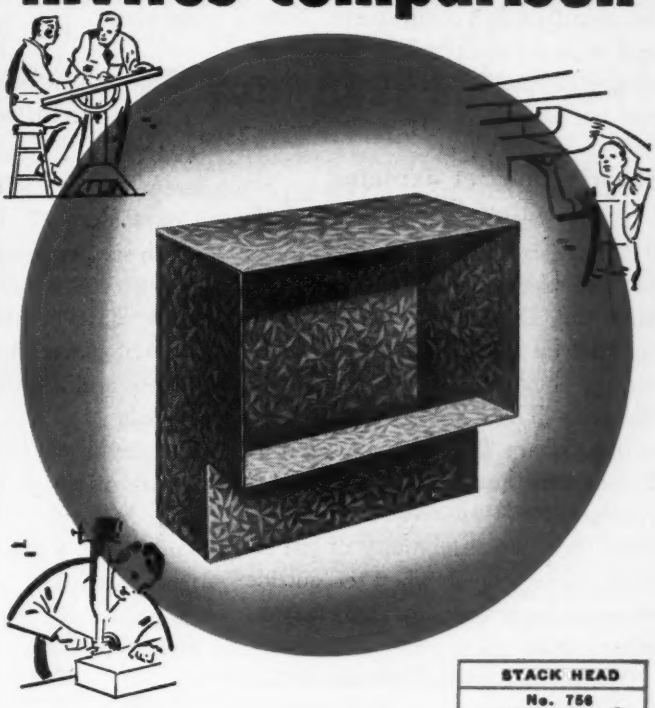
(Ball Bearing) Built to meet toughest conditions. Sizes 16-36 inches. Ideal for power plants, schools, garages, industrial plants, laundries . . . thousands in use!

WALKER MFG. & SALES CORP.
1750 PENN ST. ST. JOSEPH, MO.



World's largest factory producing Automatic Draft Regulators exclusively . . . not competing either directly or indirectly with producers of any type heating equipment.

Lamneck invites comparison



the best costs less . .

STACK HEAD	
No. 756 FORCED AIR	
3" Throat	$1.19
Net to dealer at his jobbers	

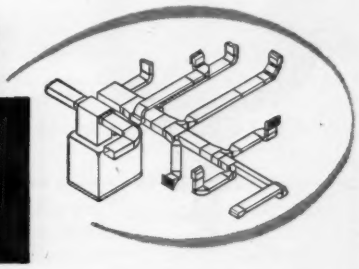
Yes, in design, construction, quality *and* PRICE Lamneck challenges comparison.

This No. 756 Stack Head is precision built from premium 28 gauge steel. Like all Lamneck fittings it is designed and constructed for ease of installation, because we know that time is money, and speedy installations add up to greater profits!

LAMNECK MAKES A COMPLETE LINE OF FURNACE PIPE & FITTINGS

Simplenic SYSTEM T.M.

Lamneck FURNACE PIPE & FITTINGS



Another Great C&L Product

Write for free comprehensive Lamneck Catalog and the industry's latest book "Standardized Fittings."

CLAYTON & LAMBERT MFG. CO.
1701 DIXIE HIGHWAY LOUISVILLE 10, KY.

fuelfoil oilheat

wiring and testing the controls, with circuit analysis the subject of the last page. Diagrams show the details of wiring and installing the controls, with a labelled photograph used to point out essentials and components. Nineteen steps are described for testing the completed installation before it is put into operation.

Skuttle Booklet explains Benefits of Humidity

HUMIDITY is the central theme of a small booklet published by the Skuttle Mfg. Co., Detroit 7, Mich. It points out that on a cold day the air in an average home without an effective humidifier will be twice as dry as the air on the Sahara Desert in midsummer. The relative humidity on the Sahara averages 20% to 23% in summer, while the relative humidity of the air in an average home when the outside temperature hovers near zero may be below 10%.

The booklet explains the advantages in healthful atmosphere, fuel economy and creature comfort to be derived from adequate humidification. It further displays and describes the entire range of humidifying equipment manufactured by the company and explains its principal feature, which is the use of highly porous glass fiber humidifying plates.

Wheelco Literature on Multi-point Capacilog

A 4-PAGE, 2-color bulletin has been prepared by Wheelco Instruments Co., Chicago 7, Ill., explaining how up to six permanent records of industrial processes may be obtained on one strip chart of the new Multi-point Capacilog recorder. Complete specifications and a listing of models are included.

Bulletin MPC-1 describes the accuracy of the deflection type measuring circuit, Wheelco's "Electronic Link" and the simple chart printing mechanism. An open view of the instrument shows the arrangement of basic recorder assemblies.

Tankit Names Debler for New England States

IN LINE with its expanding sales program the Tankit Co., Newark, N. J., has appointed William J. Debler, Needham, Mass., as its manufacturer's representative in New England.

Mr. Debler, well-known as a factory representative in the territory, has a wide background of experience in all phases of the oilheating business. He will represent the company in the sale of its Tankit repair sets and Neutroda fueloil deodorant.

The Tankit Co. also announces removal of its warehouse to 38 Hobson St., Newark, where larger quarters are available to care for additional domestic and export sales.

Eckhart Invites Industry to Bowling Alley Opening

ARNOLD ECKHART, owner of Eckhart Mfg. Co., Union, N. J., manufacturers of Eckhart and Silent Korth oilburners, is part owner of the new million dollar Echo Bowling Center on Route 29, Mountain Side, N. J.

Grand opening has been set for September 15 with a cordial invitation issued by Mr. Eckhart for all oilburner and accessory people to attend.

Use Maid-O'-Mist No. 67 Auto-Vent for automatically venting the air from Hot Water Convectors and Baseboard Radiation. Elimination of the air in every hot water heating system is essential for efficient operation.

- Self-closing, float-controlled valve
- Non-ferrous metals
- Quick and easy to install
- Small size—3-3/16" x 1½" with ⅛" I.P. male connection
- No air chamber required
- For pressures up to 30 lbs.
- For vertical mounting only

No. 67 AUTO-VENT

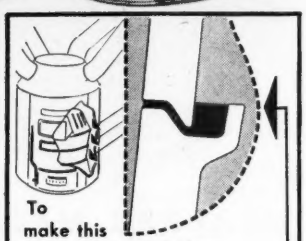
Ask Your Jobber

MAID-O-MIST INC.
3221 N. Pulaski Rd. CHICAGO 41, ILL.
AUTOMATIC HUMIDIFIERS FOR ALL TYPES OF HEATING SYSTEMS

The same unfailing dependability...
The same ease of application...
The same economy...

but... A Brand New Label...
for Grant Wilson ASBESTOS FURNACE CEMENT

It's still *THE* furnace cement that's thoroughly fireproof, smokeless, odorless and acid proof. For a permanent seal, *every time,* specify Grant Wilson Furnace Cement by name.



To make this "DANGER ZONE"— a "Safety Zone" get Grant Wilson Furnace Cement from your Jobber.

See for yourself . . . write for free Sample #138-F to Grant Wilson, Inc., 141 W. Jackson Blvd., Chicago 4, Ill.

Grant Wilson inc.
ASBESTOS and INSULATING MATERIALS

Shirtsleeve Comfort

can be your best salesman!

Shirtsleeve Comfort! There's an idea for you. A powerful, hard-hitting *selling* idea that's sure to mean business and profits for you!

It's what your prospects *want*. It's what *you* can offer—with Ingersoll Heating Equipment.

Here's the line that's setting the pace in *Shirtsleeve Comfort* and furnace value. A complete line of warm air equipment—winter air conditioners, gravity furnaces, conversion burners, highboys, lowboys. Models and sizes for practically any warm air heating need. Outstanding design and creative engineering—for maximum performance. Top quality materials and construction—for a long life of trouble-free comfort. Quality features home owners want. All backed by Ingersoll's many years of heating experience, engineering leadership and precision manufacturing.

And for *you*—appeal-packed literature, ad mats, co-op ad plan, decals, display materials and other sales promotion aids, factory engineering assistance, distributor help.

Want to let *Shirtsleeve Comfort* sell for you? Hustle that coupon back to us and we'll send you all the competition-beating details.

ENGINEERING B-W PRODUCTION

INGERSOLL PRODUCTS DIVISION
Borg-Warner Corporation
Kalamazoo, Michigan

Ingersoll
HEATING EQUIPMENT
for
Shirtsleeve Comfort

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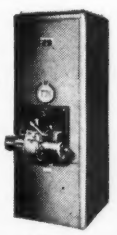
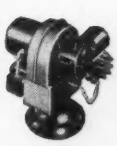

FORCED AIR HIGHBOY

FORCED AIR LOWBOY

PRESSURE GRAVITY

VAPOR GRAVITY


OIL BURNERS

DISTRIBUTORS-DEALERS!
Mail coupon for details!

INGERSOLL PRODUCTS DIV., *Borg-Warner Corp.*
Dept. rO-5 Kalamazoo, Michigan
We're interested! Rush literature and details for:
☐ Franchise Distributorship ☐ Dealer
Send us literature, too!
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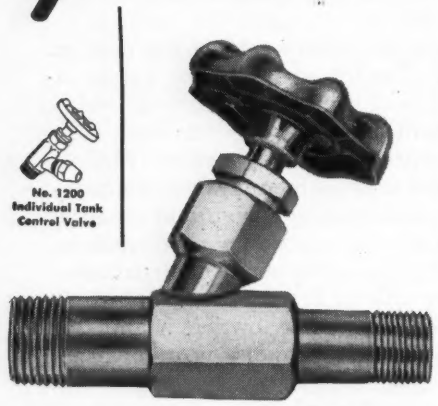
Fuel Oil & Oil Heat

You'll Like this NEW Oil Filter Valve by Guardian



No. 1200 Individual Tank Control Valve

No. 1900 Oil Filter Valve

No. 1300 Two Tank Control Valve Assembly

No. 1600 Underground Tank Valve

No. 1400 Globe Valve for Oil, Water or Gas

No. 1905 Oil Filter Valve made with ½" inlet I.P.T. male threads and ⅜" outlet I.P.T. male threads.

This newest Guardian valve provides a straight-out connection to the filter—right at the tank. You're bound to like it because it has all of the superior GUARDIAN VALVE features. You'll like it because it is designed to increase your profits by making installations simpler and trouble-free.

- **All components precision screw-machined to close tolerances.**
- **Brass bar stock used throughout to eliminate porosity and brittleness.**
- **Adjustable packing nuts take care of future wear.**
- **Specially designed J-M pre-formed graphite-asbestos packing for gas and oil service.**
- **Lifetime service without "freezing" through metal-to-metal seat.**
- **Silver solder brazing—stands up to 1150° F. without weakening.**
- **Single, complete assembly reduces leakage points by reducing number of threaded joints.**

Ask about Guardian Flexible Couplings — Over 4 million in use!

To be sure you get Guardian quality look for the name Guardian stamped on the body of the valve. All Guardian valves are GUARANTEED valves.

Guardian PRODUCTS CORP. VALVE DIVISION

DEPT. F-81, 1215 EAST SECOND STREET

Michigan City, Indiana

Readers' Problems

Q. I would appreciate your comment and advice concerning the conversion of this gas-fired steam boiler to oil fuel. Enclosed sketches indicate the methods I have in mind. I am particularly concerned regarding the minimum combustion chamber required with provisions for a sight glass or inspection door; also the best provision obtainable against carbonizing or soot accumulation on the vertical and direct flue gas passages.

Are there commercial products available for said conversion?

Thank you for your courtesy of reply and any assistance you can provide.

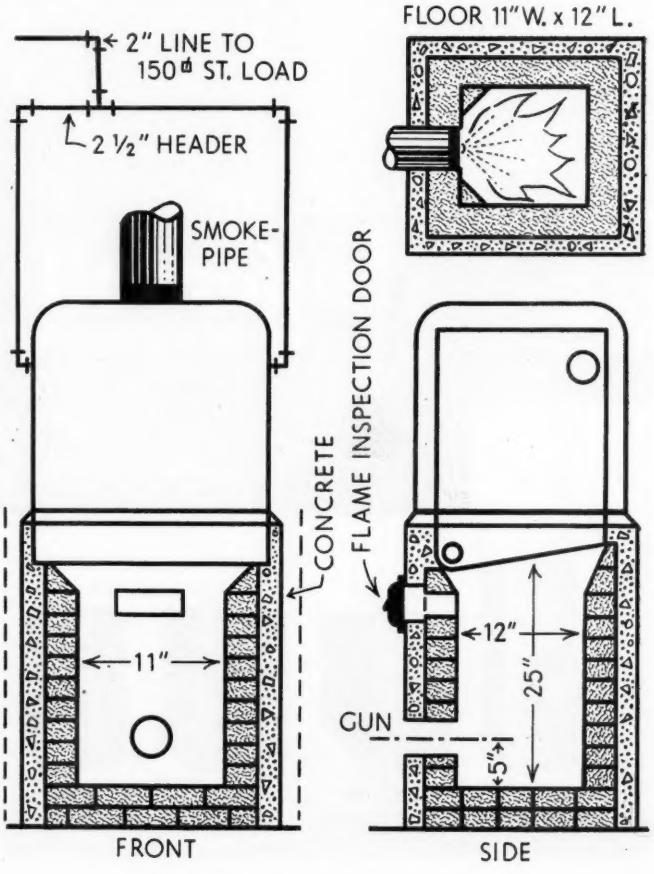
M. F. J., Helmetta, N. J.

A. Do not build a firebox to one side of the boiler as you indicate in your "Scheme B." This would be needlessly costly. To line the walls and ceiling of the Dutch oven (made of concrete 5" thick) with a 1" thickness of fire clay is not practical.

Your "Scheme A" is excellent except for one or two details. Here you either raise the boiler or construct a pit under it to obtain 33" as the distance from the concrete floor, on which the firebox is built, to the direct heating surfaces of the gas boiler. On the concrete floor and centered under the boiler, you have a firebox made of firebrick. The firebox is 11" wide, 12" long, and 14" high. The big thing wrong is that above this firebox you have front, side, and back walls of 5" thick concrete, lined with fire clay 1" thick. Again and as was mentioned earlier, a 1" thickness of fire clay is not practical.

Our accompanying drawings show, under the boiler, a combustion space 11" wide, 12" long, and approximately 25" high from the firebox floor to the boiler's direct heating surfaces. This is made entirely of insulating firebrick suitable for 2300° or 2600°, and has walls 4½" thick throughout. The floor is 5" thick, being made of two layers of firebrick.

Concrete a minimum of 3" thick, well reinforced with steel rods and steel mesh to prevent cracks and air leaks, forms an outer wall around the insulating firebrick. The dotted lines at the sides of the front view suggest making the concrete thicker than the drawing indicates, if you find this feasible. You may want to have some kind of metal jacket around the concrete base (pour the concrete into this jacket while it is braced by a rough form made of wood)



AT-A-GLANCE

Sentry TANK GAUGES

REMOTE READING
INDOORS · OUTSIDE
UNDERGROUND

Type D-O and D-10 Gauge for basement tank installations with 2" and 1½" openings respectively.

Type D-U Gauge for underground tank installations. Fits 2" openings only.

ACCURATE, DEPENDABLE, WEATHERPROOF GAUGES

Easy to install... Easy to read!

Unaffected by specific gravity changes or variations, Sentry Remote Gauges accurately indicate liquid level at all times. Simplified mechanical operation eliminates unnecessary fittings, bulbs or levers for serviceman to tamper with as well as his need for access to building. Remote Gauge may also be combined with At-A-Glance Direct Gauge, shown below, for readings at both tank and remote location if desired. Non-corrosive, stainless steel and brass extension lines connect tank float with heavy-duty cast aluminum, weatherproof, thermometer type indicator — calibrated in fractions. Unconditionally guaranteed. Write for descriptive literature.

Sentry AT-A-GLANCE GAUGES

For accurate DIRECT tank readings

Fastest selling, most popular gauge in the industry. Simplified mechanism eliminates gears, cams, springs and magnets that wear out and cause trouble. Durably constructed with patented assembly featuring unbreakable, fog-proof, heavy-duty double plastic domes with printed calibration scale between for clear, easy-to-see readability from any direction. Gauge is Underwriters' Listed and will withstand in excess of 70 lbs. air pressure per sq. inch. Entire unit is non-corrosive and guaranteed leakproof under pressure filling and against defective operation, workmanship and materials. Quick, simple to install even on partially filled tanks. Write for complete descriptive literature.

KRUEGER *Sentry* GAUGES

GREEN BAY · WISCONSIN

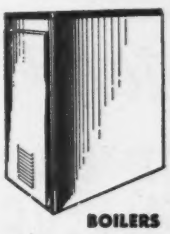
IF YOU SELL-INSTALL OIL HEATING SYSTEMS

YOUR BEST BET IS

WAYNE

THE COMPLETE OIL HEATING LINE

FORCED AIR FURNACES



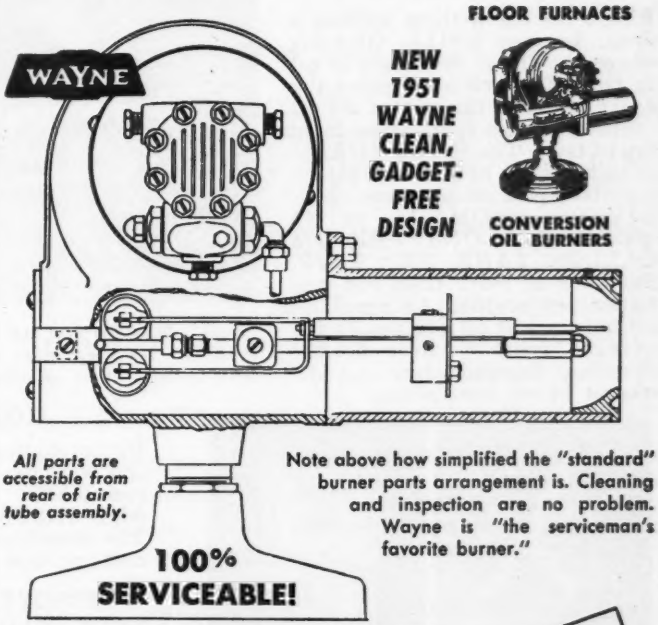
BOILERS

FLOOR FURNACES

Let Wayne oil heating equipment boost your fuel oil sales. Wayne is the name for '51 in oil conversion burners and "packaged" automatic oil heating systems. Nationally advertised — nationally accepted. Wayne is "easy to sell" —"easy to install"for peak operating efficiency with minimum service.

1951 marks Wayne's 28th year manufacturing oil burners. New design improvements and simplification of burner construction have been incorporated, resulting in the most efficient burner in the last quarter century.

As an oil jobber you will be insuring greater profits for years to come if you get the Wayne line now.



NEW 1951 WAYNE CLEAN, GADGET-FREE DESIGN

CONVERSION OIL BURNERS

All parts are accessible from rear of air tube assembly.

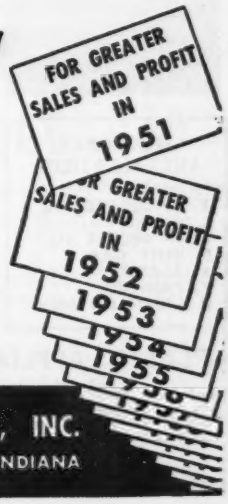
Note above how simplified the "standard" burner parts arrangement is. Cleaning and inspection are no problem. Wayne is "the serviceman's favorite burner."

100% SERVICEABLE!

GET WAYNE NOW

Act NOW to strengthen your supply and sales position. Consider the continuous demand for Wayne home equipment. Get set now — with Wayne — for more sales this year and in future years.

"The Oil Jobbers' Complete Line"



- ***Write For Wayne Franchise Details.***

WAYNE HOME EQUIPMENT CO., INC.

800 GLASGOW AVE. FORT WAYNE 4, INDIANA

to improve appearances and minimize chances of air leaks.

At the top of the 25" walls, have the brick slope outwards as the drawings indicate. This exposes all the direct heating surfaces of the boiler to radiant heat from the flame and permits the products of combustion to flow properly up into all the vertical flue passages of the boiler.

Settle the flame inspection door problem simply by fitting the base with a small door and frame made for a coal-fired boiler.

With respect to obtaining clean burning so that the flues never need cleaning, use an oilburner which has an excellent firing head. Use a firing rate so low that following a warm start (boiler about 180°) the burner must run 90 to 120 minutes to develop one pound steam pressure. This is to cause the burner to run many hours a day during winter weather. Use a clock thermostat to obtain each morning a long "on" period that cleans the boiler's heating surfaces of any small amounts of soot deposited on them during the "on" periods of ordinary length. Excellent jobs of this type can give 12% to 13% CO_2 with no chimney smoke, and are set for about 9% to 10% CO_2 to insure clean burning. Some heaters have manifolds, indirect water heaters, and hot water storage tanks to provide year-around hot water.

This may explain to you why we declare the 1" thickness of fire clay impractical and tell you to make the firebox floor of insulating firebrick 5" thick. The fierce heat developed in a firebox of this design will amaze you. You may find it best to place a piece of insulating firebrick inside the flame observation door to prevent the door from becoming red-hot and being ruined. Developing this fierce heat relates to the high combustion space arrangement, which has heat-absorbing surface only over the top. That is, the finished job has none of the vertical direct heating surfaces found in boilers and furnaces of usual designs. The extremely high combustion chamber temperatures developed on a job of this type are extremely helpful, of course, in gaining high efficiencies and exceptionally clean combustion.

See p. 29 of the book, "Heading Off Trouble in Domestic Oilheating" (available from FO&OH for $1) for additional drawings and ideas on oil-firing a gas boiler of this type.

* * *

Q. I've got a new job tending a 250 hp low-pressure steam boiler; using #5 oil. On such a job, how often should the flue tubes be punched for soot cleaning?
O. M. K., Jackson Hgts., L. I., N. Y.

A. Following good practice, firemen clean the flues of such a boiler as often as once a week and as seldom as once every three months, depending on how long the flues take to become sooted sufficiently to waste important amounts of oil. On different installations the time involved is greatly different.

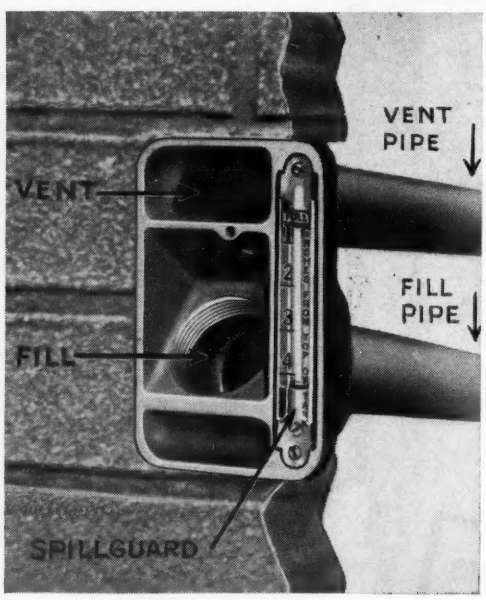
Buy a stack thermometer and read the stack temperature after cleaning the flues thoroughly. Read the stack temperature every week, of course firing the boiler at the same gph rate. Arrange to clean the flues before the stack temperature increases, say, 40°

At Last FILL WITHOUT SPILL—TO LAST GILL

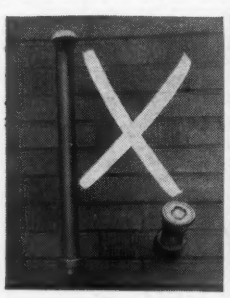
"PHILLY"
FILL-VENT BOX
with SPILL GUARD

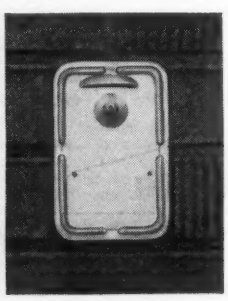
IN ONE COMPACT UNIT

Fill to the *top* without spilling a *drop*, because SPILL GUARD shows the driver the height of oil in tank. It starts to register the exact contents, the instant the oil reaches the last four inches from top of tank. The SPILL GUARD is an unfailing hydrostatic gauge, right in front of his eyes. DELIVERS FROM 15 to 45 MORE GALLONS PER 275 GALLON TANK, PER TRIP. Save one or more trips per customer per season. Accepted by oil burner and oil companies for over 14 years — over 100,000 Fill-Vent Boxes in use.
(Patented and other patents pending)



"Philly" FILL-VENT BOX and SPILL GUARD with cover removed. See lower right photo for unit in closed position.





COSTS LESS

By combining fill cap, vent cap and warning gauge into one unit you SAVE ON MATERIALS AND INSTALLATION TIME. The simplified hydrostatic gauge costs no more than a whistle.

IMPROVE APPEARANCE

SETS FLUSH. COMPACT. RUST PROOF. TAMPER-PROOF, COVER LOCKS TIGHT WITH ALLEN KEY.

OTHER FEATURES

NO NOISE, FILLS FASTER. READ IT IN DARK, ALWAYS ACCURATE, POSITIVE. EASY TO INSTALL. And we repeat—LOW IN COST.

ORDINARY INSTALLATION:
1. FILLCAP
2. 45 DEGREE ELL
3. NIPPLE
4. 90 DEGREE ELL
5. VENT CAP
6. ALARM
7. PAINTING
8. LABOR ON ABOVE

"PHILLY" INSTALLATION:
1. FILL - VENT BOX and SPILL GUARD (Complete Unit)
2. APPROXIMATELY 1/3 OF USUAL LABOR

— and that's all!

PLASTIC APPLIANCE COMPANY
5311 Westminster Avenue
PHILADELPHIA 31, PA.

SOLD THRU SID HARVEY INC. ALL BRANCHES

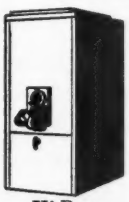
ATTACH TO LETTERHEAD AND MAIL

PLASTIC APPLIANCE COMPANY:
Send information and prices on the "Philly" FILL-VENT BOX and SPILL GUARD.
Name .....
Position .....
Type Business .....

AGAIN in '51

MORE FURNACE MANUFACTURERS THAN EVER BEFORE WILL USE THE KRESNO-STAMM *P.A.G. *Ball Flame* BURNER

This year more manufacturers than ever before—at least 59—will use the Kresno-Stamm P.A.G. Ball Flame Burner. For every application they have overwhelmingly accepted the Ball Flame as the best and most versatile unit.



Hi-Boy

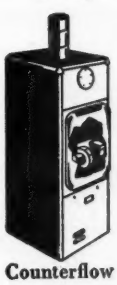
HI-BOY

More manufacturers of Hi-Boy furnaces will use the Ball Flame Burner.

Gravity

GRAVITY

More manufacturers of Gravity furnaces will use the Ball Flame Burner.



Counterflow

COUNTERFLOW

More manufacturers of Counterflow furnaces will use the Ball Flame Burner.

Utility

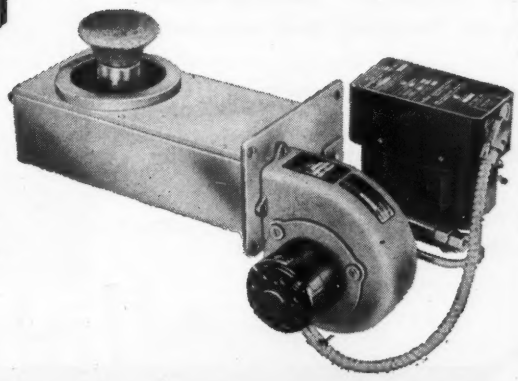
UTILITY

More manufacturers of Utility furnaces will use the Ball Flame Burner.

More manufacturers choose the versatile Kresno-Stamm Ball Flame because

- ✓ **It costs less than a gun type burner.**
- ✓ **It operates more efficiently at capacities up to 1 G.P.H.**
- ✓ **It costs less to install.**
- ✓ **It requires no combustion chamber.**
- ✓ **It requires no stack relay.**
- ✓ **It is a profitable addition to their line of gas burners and gun type oil burners.**

The Kresno-Stamm P.A.G. Ball Flame is your best bet, too. Write today for specifications.



*Pressurized Air Gravity

KRESNO-STAMM MFG. CO. (America) Inc.

PALISADES PARK, N. J.

Canadian Affiliate: Kresno-Stamm Mfg. Co. (Canada) Ltd.
1452 Drummond Street • Montreal, P. Q.

MAKE YOURS A

Year-round Business

with slack-season Furnace Cleaning jobs!

NEW furnace and boiler cleaning jobs . . . and repeat business from satisfied customers . . . that's where G-E Furnace Cleaners pay off royally.

Your spring and summer slump can be *busy* and *profitable* seasons for you if you take advantage of what these modern G-E cleaners have to offer. With a little effort on your part they will do more than their share toward keeping your crews *profitably busy* during the slack fuel season.

And these cleaners are compact, powerful, efficient . . . easy to operate and move about. They surely help you do the work and do it *well* while cutting your cleaning time.

Here's an ideal way to increase your annual volume.

Each unit converts quickly to powerful *blower* action for loosening soot in stubborn corners. Special G-E Furnace and Boiler cleaning equipment includes Chimney Flue Brush, Duct Brush, Shield, Crank and 32 feet of extensions.

MAIL COUPON FOR DETAILS

Furnace and Boiler Cleaners

GENERAL ELECTRIC

GENERAL ELECTRIC COMPANY, Dept. 22-1634
1285 Boston Ave., Bridgeport 2, Conn.

Without obligation, please send complete details on heavy-duty cleaning equipment.

NAME.....

FIRM.....

ADDRESS.....

CITY..... STATE.....

F. because of soot in the tubes. Using this basis, you'll solve your problem sensibly.

* * *

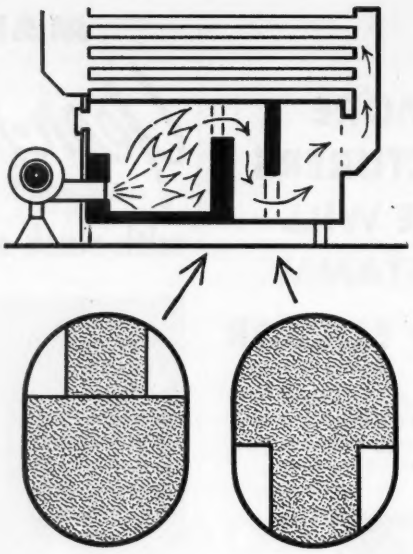
Q. Can you inform me where I can obtain some kind of draft booster? I have several oilburners that haven't large enough chimneys; 7", 8" and 12" stacks. I have seen one installation where the motor drives a blower inside the smokepipe.

J. R. J., Robesonia, Penna.

A. A well-known line of draft inducers is offered by L. J. Wing Mfg. Co., 154 W. 14th St., New York 11, N. Y. At the Philadelphia heating show, a new domestic-size induced draft blower was exhibited by Viking Mfg. Corp., 1747 Chester Ave., Cleveland 14, Ohio.

* * *

Q. How do you install a high firebox back wall, followed by a second back wall to increase clean burning and obtain slight down-draft effect in this odd warm air furnace? Job has a long, shallow firebox which gave very incomplete combustion. Small firetubes



of the flues filled up with fluff soot. Wind blowing down chimney, on days when there is no chimney draft because furnace is idle, keeps blowing this fluff soot into burner gun tube, causing ignition failure. I figure clean burning, gotten by installing a short and high firebox with the double back wall, may end trouble.

L. S. C., Greensboro, N. C.

A. This probably is the arrangement you inquire about. Make the outlet areas of the two walls about 150% of the total area of the firetubes. Build the walls in a way that will permit you to make their openings larger, if draft tests made after the new firebox has been fired indicate this is needed to raise the over-fire draft.

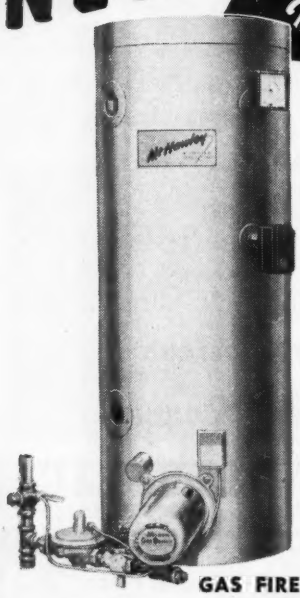
The firebox improvements you are planning should give cleaner combustion and lower oil bills, but they may not end the ignition failure trouble. You should eliminate blowing of the wind down the chimney when the furnace is idle.

* * *

Q. We are interested in installing a suspended warm air oil-fired furnace in a garage building in Wisconsin, where the State Industrial Commission seems rather tough on garage heating installations.

On writing to them we received a reply reading in part as follows: "Please be advised that there are certain furnaces of this type which have been approved for use in garages in Wisconsin. There are certain restrictions applied to the use of this type of

NEW! Mt Hawley "BUDGETEER" BOILER BURNER
Ideal for Today's "Small Home" Market



GAS FIRED

Here's a high quality, space-saving, low cost boiler especially designed to meet EVERY requirement of the ever expanding "small home" market.

Its efficient dimensional design lends itself excellently to either basement or utility room installations.

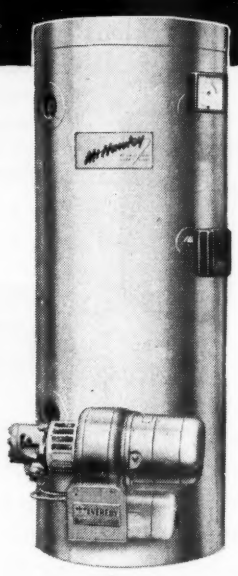
The outstanding new Mt. Hawley "Budgeteer", featuring heavy gauge, slanting tube construction, can be quickly and easily converted from oil to gas or vice versa.

It is available with domestic water coil and has a capacity of 510 ft. of hot water radiation.

Priced right, it is shipped completely insulated and jacketed for quick, easy installation.

Cash in — now — by stocking the new Mt. Hawley "Budgeteer" — the boiler especially designed for the "small home" market!

Complete details sent on request.



OIL FIRED

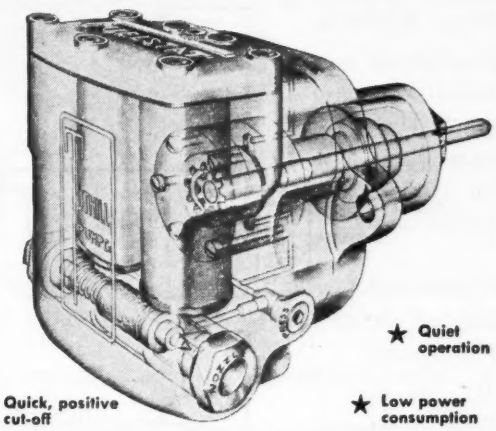
SIMPLE INTERCHANGEABILITY
GAS TO OIL OIL TO GAS
In the matter of minutes, the "Budgeteer" can be changed on the job from oil to gas or vice versa. This flexibility of firing equipment is a feature of interest to architects, engineers, builders and tradesmen alike, as it permits the owner to have the fuel of his choice NOW OR LATER.

MHM Mt Hawley MFG. CO.
Mt. Hawley Airport, Peoria 4, Illinois

INSIDE STORY OF PROVED PERFORMANCE

★ Cast iron pump unit encased in 45,000 p.s.i. tensile strength zinc alloy

★ Strainer removable without spilling



★ Quiet operation

★ Quick, positive cut-off

★ Low power consumption

★ Light weight

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Provides
- UNIVERSAL APPLICATION
- DEPENDABLE PERFORMANCE
- SIMPLIFIED SERVICING
- GREATER ECONOMY
- MORE ATTRACTIVE APPEARANCE

Proved by thousands already in service, this perfected Tuthill Fuelstat sets the pace for dependable pumping equipment. All working parts are made of cast iron and steel with high grade (99.99+% pure) zinc alloy body to obtain the ultimate in toughness, durability, corrosion resistance and leak-free performance.

It will pay you to write for full details today

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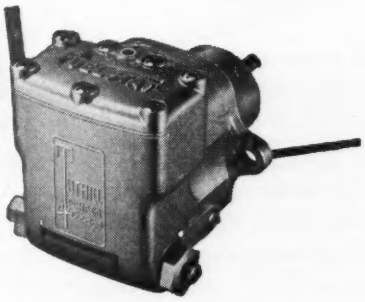
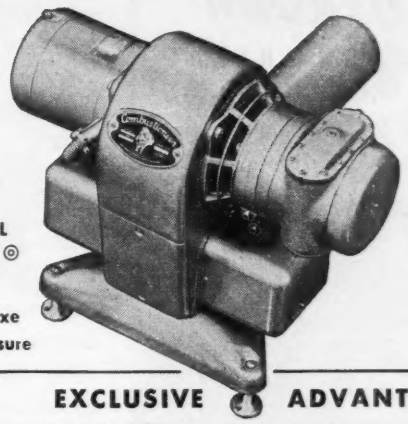


fuelomic oilheat

THE ALL NEW *Combustioneer*® Low Pressure Oil Burner



MODEL dLP ◎

◎ deluxe low pressure

EXCLUSIVE ADVANTAGES!

- "HYDRA-VATED" Low Pressure Pump
- "A flip of the finger" selects required oil capacity —variable from .60 to 3.0 GPH with burner operating.
- "Flo-mist" nozzle—15 year clog proof guarantee.
- No pistons to change. No extra pumps needed.
- Secondary air, and variable oil capacity adjustable while burner is running.
- No lift pump required for outside tank installations.
- No special high speed motor—standard motor used.
- Simple full floating, hydraulically operated piston —no linkage to wear.
- Interchangeable from low to high, or high to low pressure.

Features a completely new hydraulically operated low pressure pump—utilizing a free-floating piston which floats in a bath of oil. Operates equally well with inside, outside, single or double line tank installations—*no extra pump or parts need to be added.* Two positive hydraulically operated shut off valves. **NOTE: *Combustioneer*** ***"HYDRA-VATED" pump has a separate Underwriters' approval as a fuel pumping unit.*** Exclusive Triple Velocity Visorhead: 1. High velocity air above nozzle, deflected downward by visorhead; 2. Swirling velocity around nozzle thoroughly intermixes oil with air; 3. Low velocity below nozzle permits downward deflection. Underwriters' approved to burn all domestic fuel oils.

When you sell ***Combustioneer,*** you can be sure no other manufacturer gives dealers more real profit-making assistance. Mail the coupon for complete details on the new ***Combustioneer*** Low Pressure oil burner.

Combustioneer GAS BURNERS • HIGH AND LOW PRESSURE OIL BURNERS • COAL-GAS-OIL FURNACES • STOKERS • HUMIDIFIERS
Manufacturers of Better Heating Equipment Since 1928
Combustioneer DIVISION
THE STEEL PRODUCTS ENGINEERING COMPANY
SPRINGFIELD, OHIO

MAIL AT ONCE!

Combustioneer DIVISION
The Steel Products Engineering Co.
1273 West Columbia Street, Springfield, Ohio

Please send me information on the ***Combustioneer*** dLP Oil Burner.

Name _____
Firm Name _____
Street Address _____
City _____ Zone ____ State _____

2 LABOR-SAVING SENSATIONS

NEUTRODA*

DEODORIZES FUEL OIL ODORS

Caused by Spills, Stains, Leaks, Tank Overflow

- Just sprinkle it on. Odors vanish quickly, completely.
- Stops odor at source, removes most oil stains.
- Reduce nuisance calls by 25%*, avoid customer complaints about spillage odor.
- Where leak is inaccessible, dilute Neutroda and pour or spray onto leak.
- Odorless, Non-Inflammable, Non-Corrosive, Non-Volatile, Non-Toxic, Non-Irritating.

***SATISFACTION GUARANTEED**

If nuisance service calls are not reduced 25% in one month's proper use of Neutroda, we will refund the cost of Neutroda used.

TANKIT **STOPS**

Fuel Oil Tank LEAKS

- Cleaner, faster, easier—stops leak in 2 minutes.
- Push patch into position, even on low-legged or twin tanks.
- Replace tank at your convenience.
- Pressure can even be applied at angle.
- No pump-outs, no cellar damage, no time wasted, no lack of heat, no customer inconvenience.
- Same patch can be re-used indefinitely.
- 2 sizes—Junior for small leaks, Senior for Porous Areas up to 18 sq. in.

***BOTH PRODUCTS AVAILABLE** at your Supply House Only. Or write for full information and name of nearest distributor.*

The ***TANKIT*** Co.

17 SHEPARD AVE. NEWARK 8, N. J.

furnace. Those furnaces which have been approved come equipped with a housing or enclosure for the burner which extends from the side of the furnace. This enclosure has connected to it a pipe leading to the outside for obtaining combustion air. No air for supporting the flame of the furnace is taken from within the building."

Who makes such a unit? All advertisements in your fine paper show ordinary suspended ceiling jobs with the burners mounted on the outside.

F. O. A. K., Elm Grove, Wis.

A. First, write for information to the manufacturers you mention who advertise ceiling-hung furnaces. They may have special models which comply with the requirements you outline, though their advertisements show only their regular models.

Second, ask the State Industrial Commission to give you a list of the makes and models of ceiling-hung units which it has approved for use in garages. There should be no secret about this!

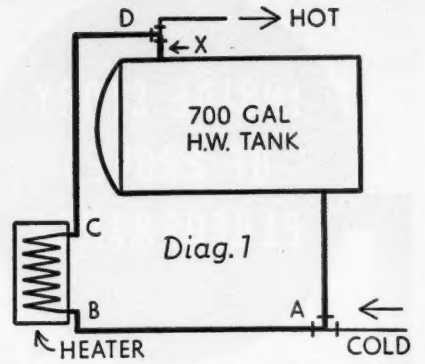
* * *

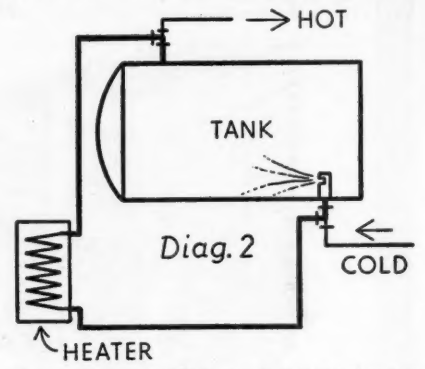
Q. This summer-winter hot water rig is in an institution, and its tank type indirect water heater is hooked to a big steel boiler kept at 180° in summer. Cold and hot water lines to tank are 1¼", lines connecting heater to tank are 2", and the nipple at "X" is 2½", which we believe represents the best practice.

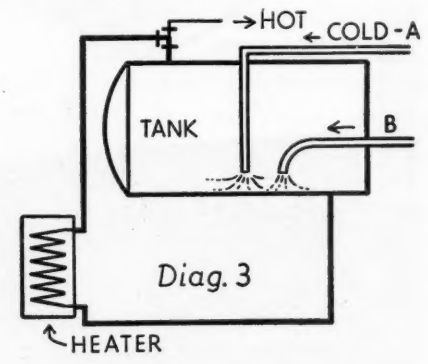
Here's the trouble. Even with hot water tank and boiler both hot, cool water runs from hot lines and faucets at times of drawing hot water at great rate, maybe a rate as high as 35 gpm because gang showers and kitchens are using hot water wholesale. Is the trouble caused by reverse circulation or by rushing water through the tank type heater coil? What's a quick, low-cost, positive way, please, to cope with the difficulty?

H. N. D., Kansas City

A. Rushing of cold water through the coil at times of heavy load causes the trouble, for the coil is not a tankless type and can't heat 35 gpm. When the trouble occurs, cold water is following the path of A-B-C-D in Diag. 1. Incidentally, this diagram does not show the important safety relief valve







and the coil clean-out valves this installation should have.

Diag. 2 suggests one remedy you can try easily. Here the entering cold water is directed more towards the tank bottom, less towards the heater coil. Use a special arrangement, similar to the one in the diagram, to cause the cold water that enters the tank to spread over the tank bottom. This avoids undue mixing of cold water entering the tank with hot water already stored in the tank. You might put a long running thread on the nipple between the tee and the tank, solder shut or plug shut the upper opening of the nipple, and slot the side of the nipple to gain the desired effect.

Diag. 3, which you may be able to use if the tank has spare openings, is far better. Using it, you will be certain that proper circulation continues through the heater coil at times of heavy loads, whereas using Diag. 2

PORTMAR "WINDSOR" SERIES BOILERS

Steam from 400 to 2200 sq. ft. Hot water from 640 to 3520 sq. ft.

Check these features:

- **Combined boiler and hot water heater.**
- **Tastefully designed jackets.**
- **Built for oil or gas firing.**
- **Maximum efficiency in both utilities.**
- **Large furnace volume.**

Complete line of Vertical Series boilers also available—320 to 1100 sq. ft. steam, 510 to 1760 sq. ft. hot water.

SEND FOR FULL DETAILS AND PRICES *NOW!*

PORTMAR BOILER CO., INC.
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AUTOMATIC CONTROL
for product or process

K-21 Magnetic Single Seated Valve
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GENERAL CONTROLS
801 ALLEN AVENUE GLENDALE 1, CALIFORNIA

Manufacturers of Automatic Pressure, Temperature, Level and Flow Controls

FACTORY BRANCHES: Baltimore 5, Birmingham 3, Boston 16, Buffalo 3, Chicago 5, Cincinnati 2, Cleveland 15, Dallas 2, Denver 4, Detroit 21, Glendale 1, Houston 6, Indianapolis 4, Kansas City 2, Minneapolis 2, Newark 6, New York 17, Philadelphia 23, Pittsburgh 22, St. Louis 3, San Francisco 7, Seattle 1, Tulsa 6, Washington 6.
DISTRIBUTORS IN PRINCIPAL CITIES

ANCHOR OIL BURNER offers
a better burner . . . a finer franchise

Get the Facts About the NEW FRANCHISE

Complete details about the new franchise on Anchor Oil Burners will be sent on request. Because our previous advertising is already swamping us with requests we urge you to act at once. Use the handy coupon . . . but do it RIGHT NOW!

Positively the best deal in the oil heating industry is Anchor's new conversion burner . . . with the kind of franchise dealers have dreamed about for years . . . and backed by dealer helps that make easier sales. Use the handy coupon to get details . . . today!

ANCHOR OIL BURNER

ANCHOR DIVISION • STRATTON & TERSTEGGE
Box 311 • New Albany, Indiana

ANCHOR DIVISION
Stratton & Terstegge
Box 311, New Albany, Indiana

Gentlemen: Rush complete details about the Anchor line of oil burners and the new Anchor dealer franchise.

Name_____

Address_____

City_____ State_____

you cannot be certain of this. "A" shows the cold water entering the tank in the proper, frequently-used fashion that spreads it over the tank bottom. "B" gains the same effect through use of a bent pipe and an opening in the end of the tank.

Dig. 2 may end the trouble easily and quickly, but use Diag. 3 if the tank has suitable openings. You can obtain excellent results from a tank with two bottom openings by using a combination of Diags. 2 and 3. Use one opening for the tricky, long-thread nipple that feeds cold water to the tank and spreads it over the bottom of the tank, and use the other opening for the circulating line to the bottom of the indirect heater.

* * *

Q. Economically, oil is the only means left for heating a crucible furnace for melting brass, monel metal, and steel alloys in my foundry.

The problem:

A. Is there an oilburner suitable for high temperature ranging from 1500° to 3000° Fahrenheit? If so, what kind of furnace oil or fueloil can be used economically without preheating? Also, can an oilburner be mounted on the furnace and be kept operating while the crucible furnace is being tilted for pouring?

B. Is there a low pressure two-stage, air spraying burner for manual operation that will give me the same temperature and used for the same purpose as above?

Have you any information on these subjects and can you tell me where I can purchase any of the equipment described above?

I thank you for your attention in this matter.

W. O., Schenectady, N. Y.

A. You are correct in thinking that fueloil is used advantageously, on the bases of convenience, flexibility, efficiency, and Btu's obtained for a dollar spent on fuel, for the application you describe.

Domestic fueloil, sold as Grades Nos. 2 and 3, is suitable for your purposes. Perhaps in your city you can obtain somewhat heavier fueloil which you can use without preheating. Check with the local fueloil suppliers to find out if they say they offer a No. 4 or No. 5 fueloil which you can use without preheating. If you are fortunate, you will be able to obtain valuable assistance in planning your oilburner installation from the combustion experts employed by local oil companies.

You show a tendency to develop definite ideas regarding the type and principle of the oilburners you should use. In an effort to help you as much as possible, we must point out that oilburners for this purpose which you describe already have been designed and developed. Thousands upon thousands are in use. We suggest that you study carefully the recommendations which you can obtain from oilburner manufacturers specializing in the field you describe, and make your selection from the burners which are offered you as highly suitable for your application.

Write to the following manufacturers of burners used in your field of application, describe your problems fully and include dimensioned draw-

ORAN offers the unique NEW DUAL-AIR vaporizing burner in ALL Shallo-Well Oil Fired floor furnaces

Underwriters' Listed

Only 34" deep, NO GROUND CLEARANCE NEEDED!

Oran's amazing, new Dual-Air vaporizing burner is one of the greatest advancements ever made in vaporizing-type burners. This unique unit burns smoke-free, even under adverse draft conditions, with oil savings up to 15%!

There are four Oran Shallo-Well models for small homes, to meet climatic conditions anywhere in the nation.

- 50,000 BTU output—Natural draft
- 50,000 BTU output—Forced draft
- 65,000 BTU output—Forced draft
- 75,000 BTU output—Forced draft

WRITE US TODAY FOR COMPLETE INFORMATION ON THESE UNIQUE SHALLO-WELL OIL-FIRED FLOOR FURNACES!

ORAN COMPANY

2210 S. Third St., Columbus 7, Ohio

ORAN

to be SEEN . . . . but not HEARD!

FOR QUIET OPERATION OF FANS, PUMPS AND BLOWERS, USE

LOVEJOY L-R FLEXIBLE COUPLINGS

They are designed to correct misalignment with maximum absorption of shock, vibration, torque and overload . . . without noise. The rubber center unit increases flexibility and absorbs vibration. These tight fitting couplings are easy to install in close, dark quarters.

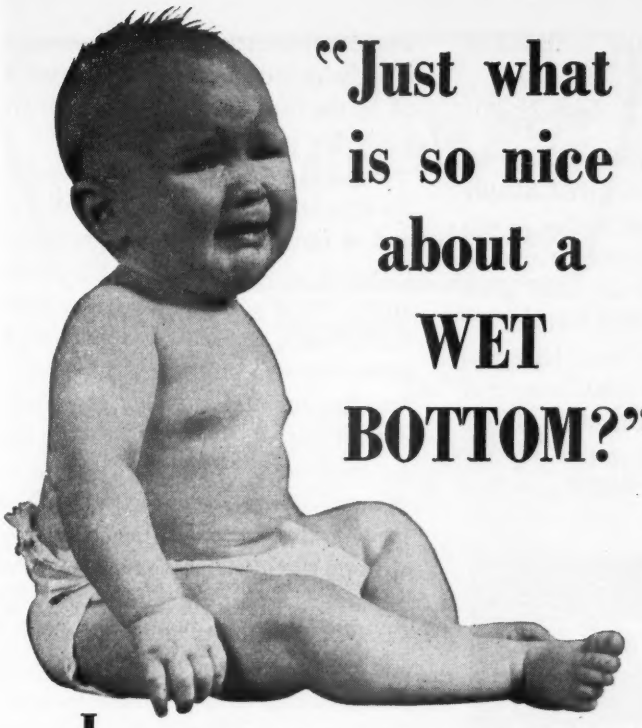
SEND FOR BULLETIN 514 and COMPLETE INFORMATION

★ A point to remember . . . Most fan manufacturers supply blowers with L-R jaws on blower hubs at slight extra cost.

LOVEJOY FLEXIBLE COUPLING CO.

5012 W. LAKE ST., CHICAGO 44, ILLINOIS

Mfrs. of Lovejoy Flexible Couplings for all industrial services. Lovejoy Variable Speed Transmission and Lovejoy Universal Joints.

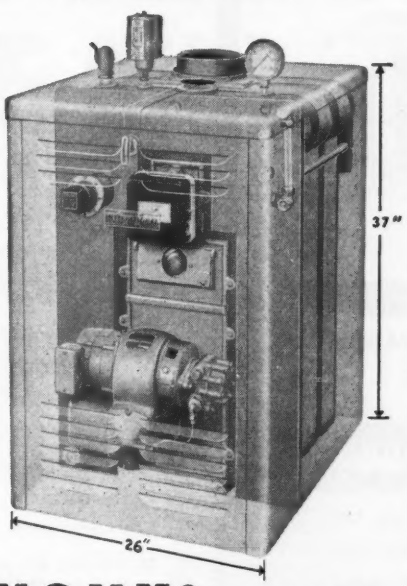


"Just what is so nice about a WET BOTTOM?"

IF you're talking about boilers, sonny — a "wet Bottom" makes a big difference in operating economy, by holding heat loss through the floor to a minimum. But that's just one of the reasons why the Series C Boiler is such a favorite. Small and compact, the Series C is *engineered* from base to smoke hood to deliver maximum heat at lowest possible cost. It's the only boiler with ECONOLOOP — exclusive International feature which changes temperature of water in radiators to suit outdoor conditions . . . resulting in uniform heat, big fuel savings . . .

BURNS OIL BETTER . . . because it's BUILT ONLY FOR OIL

I=B=R RATED
Capacity 74,000 B.T.U. to 160,000 B.T.U. Per Hour



ASK YOUR JOBBER ABOUT THE

Series C

OIL ECONOMY® BOILER

by

INTERNATIONAL HEATER COMPANY

UTICA, NEW YORK

"Nu's along the Way"

The Nu-Way Corporation
ROCK ISLAND, ILLINOIS

About Advertising and Sales

NATIONAL ADVERTISING — The four publications pictured at the left play an important part in Nu-Way's national advertising plans. With a combined circulation of more than 7,382,749, these monthlies reach the homeowner, the builder and remodeler — and Nu-Way advertisements in these books do the big job of helping sell more burners.

★ ★ ★

An argument is two people trying to get in the last word first.

★ ★ ★

LOCAL ADVERTISING AND DIRECT MAIL — Yes, Nu-Way ads build prestige for the product . . . help to make your sales easier. But this is only one part of the Nu-Way advertising program. There are newspaper ad mats (to localize your advertising), window streamers, radio spot announcements, an informative eight-page booklet and folders. First of a series of direct mail cards for Nu-Way dealers use is now available. Ask your distributor about it.

★ ★ ★

DEFINITION—A sweater girl is one who pulls your eyes over her wool.

★ ★ ★

SALES — Sales go hand in hand with advertising. That's why Nu-Way maintains a consistent advertising program. You, with the help of Nu-Way advertising, can convince your customers of Nu-Way leadership through such prominent features as Patented Air Control, etc. With a top-notch product, a ready market and a hard-hitting advertising campaign, sales of Nu-Way Oil Burners come naturally. For further information, call your Nu-Way distributor . . . or write the Nu-Way Corporation, Rock Island, Illinois.

"Automatic Oil Heat Exclusively Since 1921"

ings of your crucible furnaces, and ask for recommendations.

Hauck Mfg. Co., 126 Tenth St., Brooklyn, N. Y.

National Airoil Burner Co., Inc., 1278 E. Sedgley Ave., Philadelphia 34, Pa.

North American Mfg. Co., 4457 E. 71 St., Cleveland, Ohio.

* * *

Q. Can you tell me if I can install an oilburner in a pipeless furnace and what control to use. Shall I use a brick firebox or a ready-made box? This is the first call I ever had to install in a pipeless furnace.

D. P., Lodi, N. J.

A. Thousands of oilburners are firing pipeless furnaces very well. Simply arrange the burner and firebox as you would for firing a gravity circulation warm air furnace of the same grate dimensions as the pipeless furnace. Install a burner which has a long gun tube. Check with the manufacturer of the controls you use, and obtain a high limit control suitable for a pipeless furnace. With this control mounted above the furnace, its sensitive element must be in the current of hot air given off by the furnace. Special controls are made for pipeless furnaces.

For a large pipeless furnace, install the type firebox you usually install. For one of the exceedingly small pipeless furnaces which are popular in some areas, having a 12″ x 12″ square grate arrangement or some similarly small grate, the big problem is to build a large enough firebox and to avoid having the grate lugs interfere with building the firebox. Solve this problem by selecting a firebox that can be installed easily in the particular furnace. If you can't do that, you may have to remove the grate-support parts from the furnace, take them to a machine shop and have the lugs removed from them in a thorough and shipshape manner, and then put the furnace back together again in a way that gives you ample space for building the firebox. This may run up the cost of your installation work by $30 to $50, but may be necessary for excellent combustion and completely satisfactory firing of the pipeless furnace.

You should have a copy of "The B&W Firebox Handbook" to help you design unusual fireboxes. Obtain a copy from The Babcock & Wilcox Company, 85 Liberty St., New York 6, N. Y.

* * *

Q. In a colonial style house having no cold air returns for the second floor, is it usual practice to install second-floor returns when installing a new forced-air furnace to replace a gravity furnace?

A. R. B., Detroit

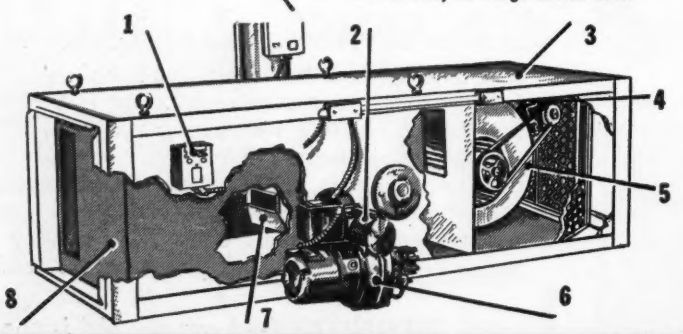
A. It is not usual practice because of the great cost and because many new two-story homes of this pattern are nicely heated by forced-air systems which do not have second-floor returns. Only the few, rare equipment dealers who are perfectionists would consider installing second-floor return registers and ducts for the homes you describe. It is true, however, that the second-floor returns give far better heating in certain homes, particularly eliminating chances of annoying and discomforting currents of cold air cascading down the stairs.

Profit with PERFECTAIRE
Oil-Fired SUSPENDED FURNACE

Supplement your Furnace line with this Versatile, Expertly-Engineered Horizontal Unit with

8 DEFINITE POINTS OF SUPERIORITY!

1. Adequate Safety Wiring
2. Easy to Service
3. Shipped as Packaged Unit
4. Resilient Mounted Motors
5. Quiet Operating Blower
6. Approved Oil Burner with Two-Stage Pump
7. Stainless Steel Combustion Chamber
8. Heater Body 12 Gauge Carbon Steel



3 MODELS
B.T.U. Capacities
110,000 to 450,000

DISTRIBUTORSHIPS AVAILABLE
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Catalog No. 5-40

Ideally Suited For:
Gymnasiums
Bowling Alleys
Restaurants
Temporary Heat in Construction Work
Warehouses
Show Rooms
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Airplane Hangars
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Homes—with and without Basements
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AIR CONDITIONING ENGINEERING CO.
44 First Street, Cambridge, Mass.
Please send data on PERFECTAIRE Unit.
We are interested in Distributorship
for: TERRITORY .....
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Make This

Extra Profitable Sale

on Every Service Call!

Klemm FUEL OIL FILTER

Millions Since 1932

Almost every oil-fired heater, boiler or range needs a fuel oil filter for top performance. Assure your customer of heating comfort by installing a KLEMM Filter—the only filter with CHEMISTONE—*the original controlled porosity element.*

A big market—good profit —repeat sales.

ORDER KLEMM FILTER FROM YOUR JOBBER—*Today!*

Klemm

AUTOMOTIVE PRODUCTS CO.

1718 N. Damen Avenue • Chicago 47, Illinois
Mfd. in Can. by Elgee, Ltd. 410 Hopewell—Toronto
Export Div.: Guiterman Co., Inc. 35 S. Williams St., New York, N. Y.

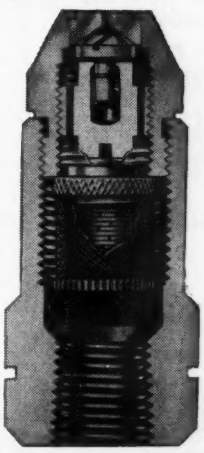
Model 430-G

DON'T BLAME THE OIL!

Install the Correct

DELAVAN NOZZLE

with HALLY FILTER . . . and solve your oil burner nozzle problems.



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DELAVAN

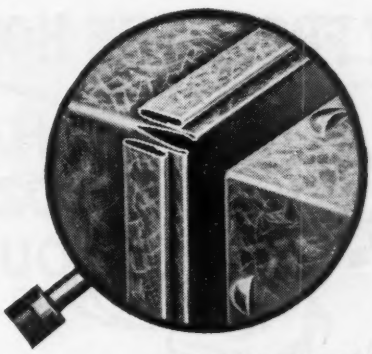
MANUFACTURING CO.

3009 SIXTH AVE., DES MOINES 13, IOWA

ADELTA *takes the Work out of* DUCTWORK!

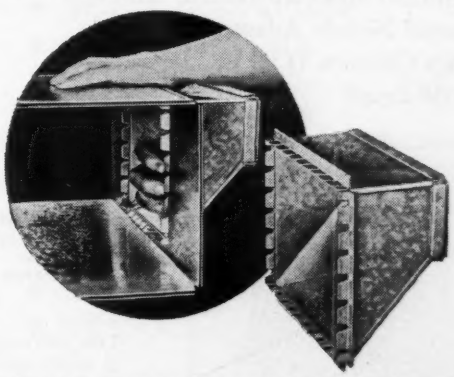
ADELTA warm air systems have been redesigned from plenum to register . . . bringing you many *exclusive* fittings and *time-saving* features like those illustrated. And since ADELTA ducts and fittings cost no more than old-type units, your faster installation time means bigger profits.

Investigate the ADELTA line today! Send for our illustrated catalog, showing the complete line of standardized ducts, pipes and fittings. No obligation.



ONE-PIECE SNAP-LOCK CLEAT WITH THE TAPERED LEADING EDGE

. . . is an exclusive feature on all ADELTA Stack, Trunk and Fittings. You just push two sections together, and presto!—you have a rigid, leakproof joint . . . without any drilling, notching or crimping to slow up the job. Cleat can't get lost in shipment or on the job because it's formed from the same sheet as the fitting.



NEW PRE-NOTCHED COLLAR EDGES

. . . save time on every collar edge connection because they're easily closed by finger pressure. No need for the installer to notch the edges, straighten them with pliers, and hammer them closed. Notches are die-cut in a U-shape, and corners are rounded to prevent finger injury. Provided on all 4 sides of fittings with collars—at no extra cost.

NATIONAL WARM AIR HEATING AND AIR CONDITIONING ASSOCIATION — INDOOR COMFORT

AIR DISTRIBUTION INSTITUTE — ADI STANDARDIZED FITTINGS MEMBER

ADELTA

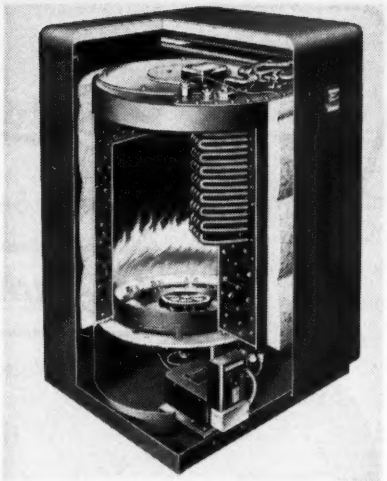
MANUFACTURING COMPANY, INC.

2101 Ellsworth Street • Philadelphia 46, Penna.

New Products

Four Timken boiler Units for forced hot water Heating

TIMKEN has announced a new line of boilers for forced hot water systems, with two models rated at 80,000 Btu/hr output, two at 100,000 Btu/hr output. Each is fired with a Timken Silent Automatic wall-flame oilburner. The line features square, round-cornered cabinets, that take up no more space than an automatic washer, with door and top panel removable for service access to the boiler interior.



Models OBR-80 and OBR-80A are shipped with steel hearth and burner completely installed and feature an insulated cabinet, steel plate heating boiler, built-in copper coil instantaneous domestic water heater, standard controls and boiler trim. Models OBR-100 and OBR-100A, which have a refractory hearth and are designed for field installation of the burner, have the same standard equipment as the other models, with the exception of domestic water heater coils. They were designed for use where excessive liming of coils occurs and where domestic water must be heated by supplementary means.

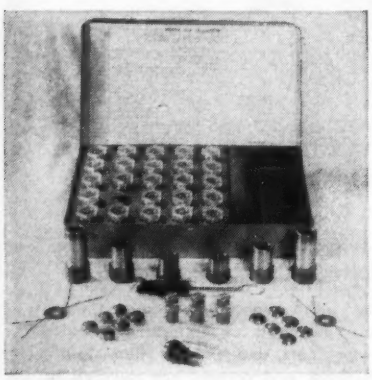
Made by: Timken Silent Automatic Div., Timken-Detroit Axle Co., Detroit 32, Mich.

RIGHT FROM THE HORSE'S MOUTH

HARVEY NOZZLES ARE YOUR BEST BET

Harvey Nozzle Package No. 2 is full of winners—

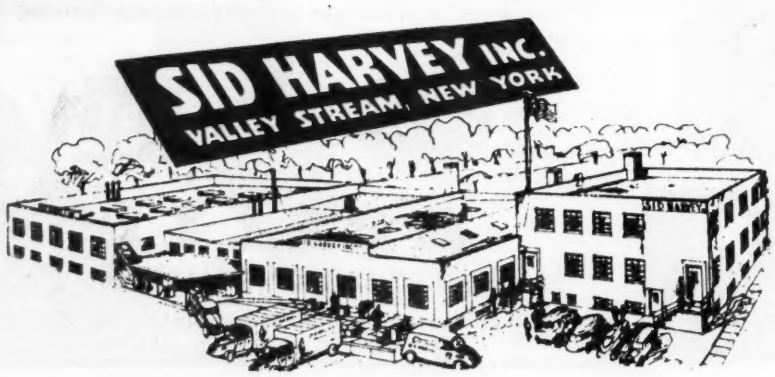
25—Assorted Nozzles with Strainers individually packed in new dust-proof plastic containers, plainly marked for size, angle and type spray
18—Additional Assorted Nozzle Strainers
6—Assorted Nozzle Adaptors
2—Orifice Cleaners (1.00 to 3.00 size)
1—Nozzle Brush



SPILL PROOF METAL BOX
with Nozzle Size Calculator inside lid
YOUR CHOICE OF EITHER HOLLOW CONE OR SOLID CONE NOZZLES
Trade Price $24.95 for single PACKAGE
$23.95 lots of TWO OR MORE

You can't lose if you have two packages in every service car:
One hollow cone spray and one solid cone spray.

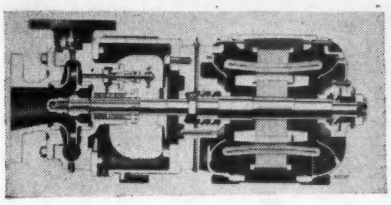
Make your own selection of sizes. No extra charge for small sizes.



Ingersoll-Rand Motorpump for bulk station Service

THE CAMERON MOTORPUMP has been developed for bulk station service and is being offered in 2, 3, 5 and 7½ hp models, all equipped with explosion and weather-proof motors to permit installation outdoors without protective covers. High efficiency of the units is attributed to its hydraulic design which directs the liquid from the suction directly into the eye of the non-overloading type impeller. The Motorpump discharge may be closed without overloading the motor and no relief valves are employed.

Leakage has been minimized by a stuffing box deep enough to accommodate 5 or more rings of packing and a sealing gland, along with a hardened steel shaft sleeve which resists wear. Other features include a lubricator to

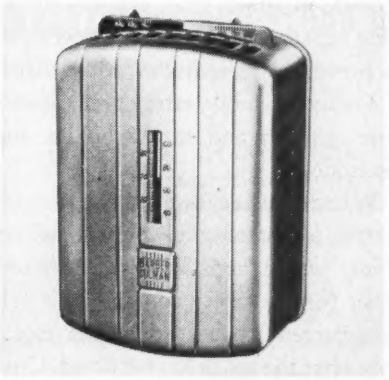


apply an especially compounded stick lubricant, a compressed packing under the shaft sleeve, a gasket between the impeller and sleeve, oversize shaft and bearings and the balanced impeller. Maintenance on the units is facilitated by removable split-type stuffing box glands, a special impeller puller and impeller nut wrench.

Made by: Ingersoll-Rand Co., Cameron Pump Div., 11 Broadway, New York, N. Y.

Barber-Colman Thermostat for two-position, day-night Control

DUPLEX THERMOSTATS, announced by Barber-Colman, have been designed for two-position, automatic day-night control at different temperatures of motor-operated valves, pumps, relays and other heating system components. The low voltage units control at reduced temperatures for night or non-occupancy periods, with control changed from one thermostatic element to the other by automatic time clock or manual switch.



Control settings are varied easily from 45° to 75°F. for night, 55° to 85°F. for day operation. Stops inside the case can be set to limit or lock controls settings, with differentials ranging from 1½° to 2°F. The control's snap action switches, with fine silver contacts, are single pole, double throw. The thermostat is enclosed in a champagne gold-finished metal case.

Made by: Barber-Colman Co., Rockford, Ill.

Ferris rotary Files combine compactness with accessibility

FERRIS ROTARY FILES are available in improved models that retain all the advantages of previous models, plus new features that simplify and speed filing operations. Standard sizes hold up to 12,000 cards, available to accommodate 3 x 5, 4 x 6, 5 x 8, and 3¼ x 7⅜" cards, equipped with removable baskets in balanced trays which may be rotated either way by fingertip control. There are no belts, punch cards, slots, rods or fastening device, insuring free accessibility to one or a dozen cards instantly and allowing cross-filing. Present cards can be used and transferred quickly.

A hand brake is provided to lock the wheel in any desired position, even after several trays have been removed, with an attached, folding posting shelf available. All models, which are constructed of heavy steel and mounted on casters, have locking slide covers and compression follower-blocks for tabulating cards. On request, files may

G. E. OIL FURNACE PARTS
Don't turn down G. E. oil and service accounts!
You can get all G. E. parts rebuilt to G. E. standards and guaranteed by the largest and best equipped plant in the industry.
● MOTOR COMPRESSOR
● MASTER CONTROL
● TRANSFORMERS
● FLAME DETECTOR
● NOZZLE LINES
● SCREEN VALVE
● CLOCK THERMOSTATS
● LIMIT CONTROLS
● ELECTRODES
● SOLENOID VALVE
GENUINE G. E. MASTER SERVICE MANUALS
(pocket size)
available at $1.75 each.
SID HARVEY INC.
VALLEY STREAM, NEW YORK

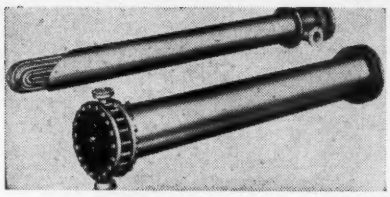
be made to any reasonable size, an increase of 1" in the cabinet width permitting 1600 extra cards to be filed.

Made by: Ferris Business Equipment, Inc., 244 Great Meadows Road, Stratford, Conn.

Wa-Tu-Bo adds U-tube oil Preheaters to Line

WA-TU-BO U-TUBE OIL HEATERS have been announced, designed especially for applications where pressures and temperatures are moderate and where the oil used is such that frequent cleanings are not necessary. The heaters incorporate the conventional tube bundle, inserted in a cylindrical shell, with the oil circulated through the tubes and water or steam supplied to the shell. The shell is made of steel pipe, with the oil chambers semi-steel castings machined to assure tight joints. Tubes are either copper, cupro-nickel or steel, depending upon the heating medium to be used. Gaskets are constructed of high-grade oil packing asbestos sheets.

Copper or cupro-nickel tubes are



furnished for below water line installations, as specified; steam heaters are equipped with steel tubes.

Capacities, based on preheating No. 6 fueloil, maximum viscosity 300 SSS at 22°F., range from 15 to 316 gph for two-pass models, from 54 to 429 gph for four-pass models and from 36 to 419 gph for six-pass models, using 212°F. water, temperature rise from 90° to 150°F. When steam is used, capacities range from a low of 9 gph to a high of 1,429 gph, temperature rise from 80° to 180°F., depending upon steam pressure.

Made by: Water Tube Boiler and Tank Co., Inc., 140 West Root St., Chicago 9, Ill.

Harner Burners equipped with positive safety Control

MODEL "S" positive safety control is being furnished with both flange and pedestal-mounted high pressure atomizing oilburners. It has been developed to prevent late ignition, and consists of a relay assembly, safety point, clamp type ignition and safety holder and electrodes.

When heat is called for a spark generated is intercepted by the safety point, which actually is an antenna feeler for the safety control. This permits current to be fed to the motor only after the spark has occurred. Once this contact has been completed the control of the motor is dependent upon the stack relay.

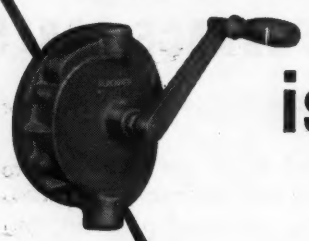
The company offers a line of boiler-burner units also.

Made by: Harner Boiler Corp., 331 Sutter Ave., Brooklyn 12, N. Y.

Dana has heat booster Fan; automatic furnace Blower

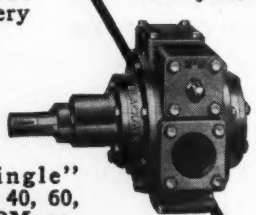
THE DANA heat booster fan has been designed for increasing circulation through sluggish warm air registers. The F-6 fan is installed directly under the register, is connected to an electrical outlet by a 6-ft. cord and operated manually to distribute sufficient

IN HAND PUMPS...
AS IN TRUCK PUMPS
BLACKMER *leadership*
is Performance PROVED!



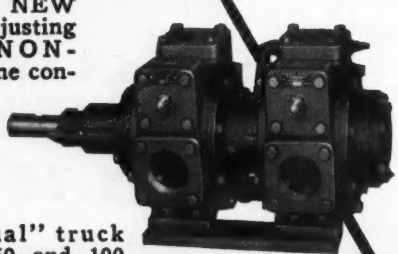
Blackmer offers the world's largest line of time-tested, dependable hand pumps of finest quality for every requirement.

FOR MORE THAN 45 YEARS Blackmer Pumps have been most consistently favored by "oil men." With minimum care, Blackmer Pumps outlast all equipment with which they are used. You can get no better pumps than Blackmers for your petroleum-handling needs.



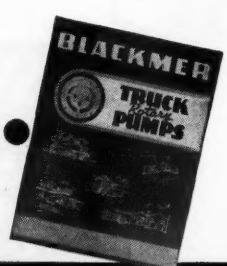
BLACKMER PUMPS lead all others in design improvements in truck pumps. With Blackmer Pumps oil marketers invariably gain profitable delivery time and lower operating costs, thereby increasing profits.

Blackmer "single" truck pumps in 40, 60, 100 and 200 GPM capacities feature NEW QUIET "self-adjusting for wear" NON-METALLIC vane construction.



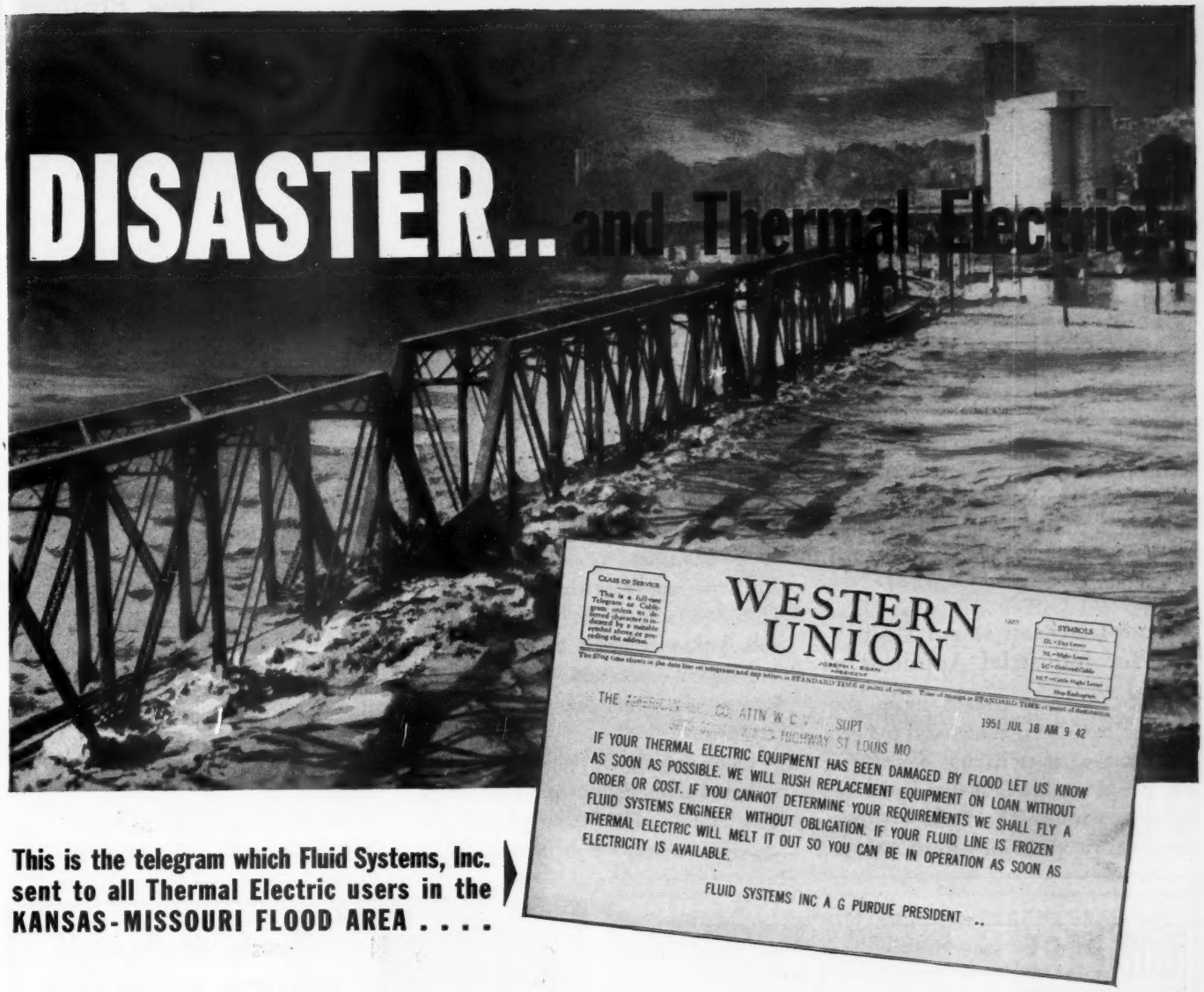
Blackmer "dual" truck pumps in 40, 60 and 100 "twin" capacities meet legal requirements in handling "split load" deliveries efficiently from compartmented trucks. Contamination of products is entirely eliminated.

WRITE FOR TP3 BULLETIN CONTAINING DETAILS OF BLACKMER TRUCK PUMPS



BLACKMER PUMP COMPANY GRAND RAPIDS, MICHIGAN

DISASTER... and Thermal Electric


WESTERN UNION
THE CO. ATTN W C SUPT
1951 JUL 18 AM 9 42
IF YOUR THERMAL ELECTRIC EQUIPMENT HAS BEEN DAMAGED BY FLOOD LET US KNOW AS SOON AS POSSIBLE. WE WILL RUSH REPLACEMENT EQUIPMENT ON LOAN WITHOUT ORDER OR COST. IF YOU CANNOT DETERMINE YOUR REQUIREMENTS WE SHALL FLY A FLUID SYSTEMS ENGINEER WITHOUT OBLIGATION. IF YOUR FLUID LINE IS FROZEN THERMAL ELECTRIC WILL MELT IT OUT SO YOU CAN BE IN OPERATION AS SOON AS ELECTRICITY IS AVAILABLE.
FLUID SYSTEMS INC A G PURDUE PRESIDENT

This is the telegram which Fluid Systems, Inc. sent to all Thermal Electric users in the KANSAS-MISSOURI FLOOD AREA . . . .

Just picture this: As flood waters began to rise, Thermal Electric users did not have to maintain steam in the face of impossible difficulties to prevent freeze-up of their wax, asphalt or other fluid lines. They did not have to remember to drain them, with a thousand other simultaneous problems demanding their attention.

Afterward, they did not have to disassemble or re-erect their fluid transport. They just hooked another Thermal Electric Transforming Energizer to the pipe, and production proceeded while Fluid Systems Engineers dried out the flood-soaked unit for reinstallation.

Where a Thermal Electric Standard System is part of the oil burning layout, steam becomes available immediately for drying out the premises and for essential services. Thermal Electric melts the bunker fuel in the pipes and in storage. If old fashioned steam systems had been used, waterlogged remote pump-sets could not have maintained constant circulation and no steam could have been available for days to heat the fuel. Thermal Electric provides immediate operation as soon as the flood recedes.

Thermal Electric's flexible equipment design permits us to furnish disaster replacements immediately from stock.

Thermal Electric has helped in many disasters. Thermal Electric was used in restoring service to Southern New England Telephone Company, New England Telephone and Telegraph Company, United Illuminating Company, and many companies along the Atlantic Seaboard after two devastating hurricanes.

In the Kansas-Missouri flood area, Thermal Electric speeded the return of service for—

Owens-Corning Fiberglas Corp.
915′ of 375°F. asphalt transfer

American Can Company
140′ of 425°F. asphalt transfer

Blanke-Baer Extract and Preserving Company

Eden Seminary

Marillac Seminary

Stephens College

Enterprise Cleaning Company

Sears-Roebuck and Company

Fluid System's engineers are a service team. No cost or effort is spared to maintain continuous and dependable performance. Direct contact with home office personnel insures service without delay at all times.

PAT. NO. 2,224,403

Thermal Electric

FLUID SYSTEMS, INC., 1881 DIXWELL AVE., NEW HAVEN 14, CONN.

Fluid Systems INC.

THERMAL ELECTRIC and FLUID SYSTEMS, INC. are trade marks registered in the U. S. Pat. Off.

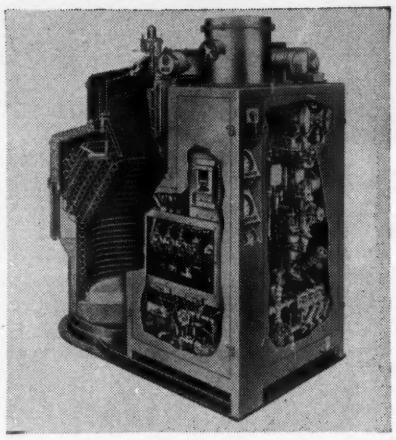
warm air to make comfortable a hard-to-heat room. The fan, equipped with aluminum blades, can be fitted to all sizes of furnace pipe.

The Dana DeLuxe automatic furnace blower fan is offered as an inexpensive method to convert gravity furnaces to forced air distribution. The 4-bladed model F-10 is installed in the cold air return pipe, with the fan automatically controlled by a fan switch installed in the furnace bonnet. This permits the fan to operate only when bonnet temperatures are within the control setting. The unit is equipped with a General Electric totally enclosed motor with sealed-in lubrication.

Made by: The Dana Fan & Blower Corp., 1501 Colerain Ave., Cincinnati 23, Ohio.

Vapor-Clarkson steam Units for industrial Applications

VAPOR-CLARKSON oilfired steam generators have been announced for general usages, after having been developed and used to heat diesel powered passenger trains. The model 4740 generator develops 200 lbs. steam pressure



in two minutes from 50 degree cold water and produces 4800 lbs. of 99% dry steam per hr, 82% efficient. No. 2 fueloil is used to fire a pressure atomizing oilburner, releasing a million Btu's. per cu. ft. of combustion space. Hot gases wipe over 702 ft. of steel coil, with one electric motor—or gasoline engine on portable units—driving water pump, fuel pump, blower and magneto.

Once started by turning a single switch, automatic controls operates the generator to turn on and off and produce steam only when needed. Steam pressures may be changed from 75 to 600 psi by turning one control. A servo control automatically modulates capacity from 1/3 to full production, with other controls incorporated, such as steam temperature limit control, stack temperature cut-out, safety valves, electric flame control, time delay relays.

Made by: Vapor Heating Corp., 4501 West 16th St., Chicago, Ill.

Fiske Heat Lock takes place of draft Control

THE FISKE HEAT LOCK, designed to replace the draft regulator on new and existing installations, contains an automatic damper that operates within the smoke pipe, adjustable to achieve stable draft conditions. Made of heavy plate gray iron, its operation is described as pocketing heat within the unit both while the burner is running and while it is off, increasing flame temperature, reducing chimney temperatures and accomplishing savings in operating costs.

Heat Lock is a patented device that is being added to the equipment and

COMPARE	Aqua Heater	Tankless Heater A	Tankless Heater B	Tankless Heater C	Tankless Heater D	Tankless Heater E
Manufacturer's Rating	5 G.P.M.	5 G.P.M.	5 G.P.M.	5 G.P.M.	*6 G.P.M.	5 G.P.M.
Total Heating Surface	16.3 Sq. Ft.	15 Sq. Ft.	16 Sq. Ft.	15 Sq. Ft.	12 Sq. Ft.	10 Sq. Ft.
Manufacturer's Guarantee	15 years	1 year	1 year	1 year	?	?
Insulation Available	Yes	No	No	No	Yes	No
Turbu Flow Coil	Yes	No	No	No	No	No
Rocklining	Yes	No	No	No	No	No

*Based on steam 212°F—all other ratings based on 180°F boiler water.

● Give more for your customers' money! More hot water . . . more plus features . . . more satisfaction . . . more sales for you when you install—

AQUAHEATER®
The Insulated Tankless Water Heater
GUARANTEED FOR 15 YEARS

INSTALL IT — FORGET IT

For details, see your jobber or write—

JOSEPH E. LEWIS & CO., INC.
1309 Carroll St. Baltimore 30, Md.

Ready to Install

DEWEY-SHEPARD
OIL OR GAS
BOILERS

YOU GET 80% OR MORE HEAT ABSORPTION WITH
the Tube within a Tube

This "Tube within a Tube" action results in pre-heating the incoming cold water before it comes in contact with the metal surfaces to which radiant heat is being applied. By this application you offer your customers many advantages such as:

● LESS FUEL USED ● LOWER INSTALLATION COST ● NO LIME—NO SCALE ● 20% LESS HEAT LOSS THROUGH THE STACK ● NO EXPANSION, CONTRACTION OR CONDENSATION ● CLEANEST HEAT POSSIBLE ● SUFFICIENT HOT WATER AT ALL TIMES

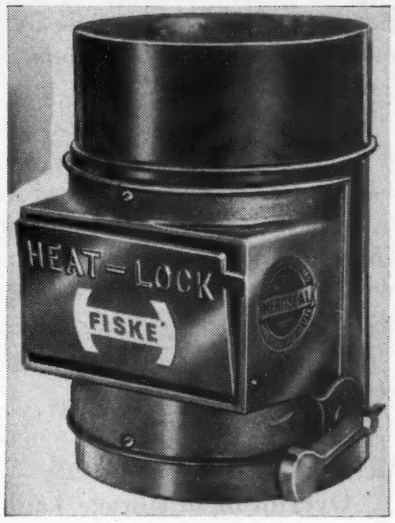
In the "Tube within a Tube" boiler there is one square foot of heating surface for every gallon of water. This method transfers every possible unit of heat to the water and results in EFFICIENT AND ECONOMICAL OPERATION.

Easy application to all hot water systems.

● TWO PIPE ● ONE PIPE ● CONVECTOR ● PANEL & RADIANT ● SUMMER-WINTER HOOK-UP

WRITE TODAY — Get descriptive literature, prices and other information.

DEWEY-SHEPARD
BOILER COMPANY, INC.
1311 NO. CAPITOL AVENUE ● INDIANAPOLIS 4, IND.



services handled by National Fuel Conservation outlets. Six claims have been allowed for the device under U. S. Patent 2441398.

Made by: National Fuel Conservation Co., 257 Battle Ave., White Plains, N. Y.

Maid-O'-Mist No. 72 Valve for hot water heating Systems

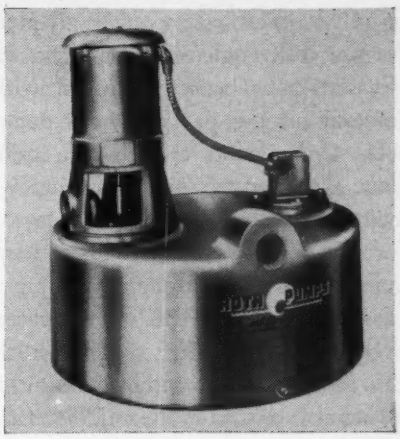
A NEW IMPROVED air vent of the expansion type has been designated Maid-O'-Mist No. 72, for baseboard, convector and free standing radiation on hot water heating systems. The cap of the valve can be removed only with a large screw driver so that the No. 72 retains its advantage of being able to be cleaned in the field while minimizing the possibility of tampering.

The valve may be installed in either a vertical or horizontal position, since it incorporates a siphon tube in its design to insure automatic operation.

Made by: Maid-O'-Mist, Inc., 3217 N. Pulaski Rd., Chicago 41, Ill.

Roth condensate Unit offers wide use Range

TWO SIZES of Roth condensate return units are offered, covering applications up to 8,000 sq. ft. EDR at 20 psi. They have been compactly designed to occupy a minimum of floor space, their vertical design being intended particularly for installations where return piping is close to the floor level. Also, the unit can be installed in a shallow pit, when desired, without risk of flooding the motor, which is mounted vertically above the pump and receiver.



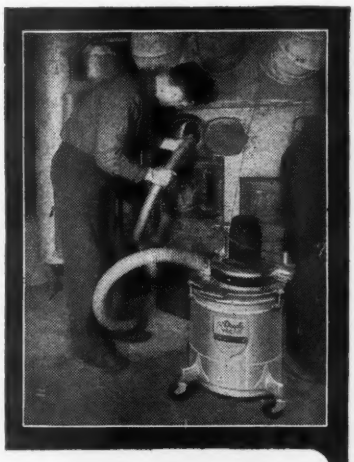
The units handle water up to 210° F. and are supplied as complete assemblies, including pump, cast-iron or steel 10 or 15 gal. receiver, enclosed float switch. Simplex or duplex units also can be furnished.

Made by: Roy E. Roth Co., 2420—4th Ave., Rock Island, Ill.

Thermal Electric System for automatic, electric Preheating

THERMAL ELECTRIC is a completely automatic, all-electric system for transporting #6 fueloil from unheated storage and delivering it to the burner

PROFIT NOW!
WITH
GRAND RAPIDS FURNACE CLEANERS



It's easy to get a lion's share of furnace cleaning profits when you use a Grand Rapids Furnace Cleaner. Greater cleaning capacity, handling ease and practically designed groups of furnace cleaning attachments help you give better service and clean more furnaces per day at a higher profit.

Act now! Write today for complete information and prices.

DOYLE VACUUM CLEANER CO.
233 Stevens St., S.W. Grand Rapids 7, Michigan

AUTOCRAT OIL BURNERS
OFFER
HEAT
PLUS
ECONOMY

FOR YOUR CUSTOMERS
with the NEW COMBUSTION HEAD

This famous Autocrat Line is one of the oldest and finest in America. As a Dealer, you can safely recommend Autocrat Oil Burners to your customers. You may promise efficiency, dependability and economy . . . and Autocrat with the new Combustion Head will live up to your promises. Write at once for prices and liberal Dealer discounts.

Manufactured by
CHANDLER COMPANY
CEDAR RAPIDS, IOWA

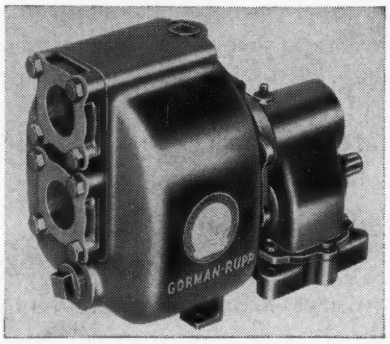
at 120°F. The system can be adapted for use with single or multiple burner installations, whether equipped with integral oil pumps or remote pump sets. Components consist of a tank unit, a thermostat, immersion heater, switches, control panel and a transforming energizer that passes low-voltage current through the pipes carrying the oil. The oil is heated evenly over the entire system, which can be shut down without draining. When it is re-started the solidified fuel melts and flows to the burners.

For use in conjunction with the system, Thermal Electric calculation forms are available, which enable a dealer to quickly estimate bunker oil preheating equipment costs. With the forms and job specifications, a dealer fills in data such as pipe length and number of burners in the system to secure automatically the list of equipment needed and costs. Other forms permit the dealer to submit information direct to the factory for completion of the equipment list and prices.

Made by: Fluid Systems, Inc., 1881 Dixwell Ave., New Haven 14, Conn.

Gorman-Rupp truck Pumps manufactured in two Sizes

A SELF-PRIMING centrifugal pump for handling light oils and gasoline has been announced by Gorman-Rupp, offered in 2" and 2½" sizes for both suction and discharge. It has been de-



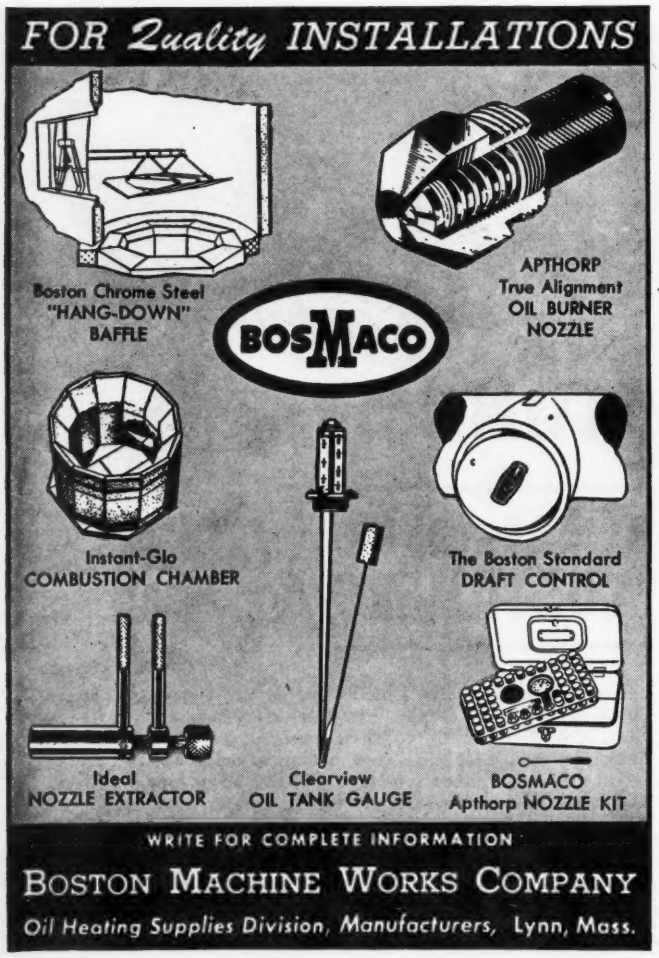
signed specifically for handling petroleum products in tank wagon, bulk station and storage facilities. The new gear-driven model with speed increaser for use with power take-off connections on petroleum tank trucks has a patented self-priming design that eliminates the need for a check valve. Another feature is its dimensions, 11" wide and 13½" wide, to provide plenty of under-clearance on the truck and facilitate installation between frame members.

The gear drive increases the speed of the power take-off 4.2 times, with the pump equipped with hardened and ground helical gears of ample strength. The system can be fitted with adjustable automatic pressure switch to cut off the truck engines in emergencies.

Made by: The Gordon-Rupp Co., Mansfield, Ohio.

McGillis fill Valve prevents Overfilling of storage Tanks

MCGILLIS SAFETY FILL VALVE, attached to the fill pipe openings of fueloil storage tanks, is equipped with a float that automatically shuts off the tank truck oil supply when the oil in the tank reaches the proper level. The valve, in addition, controls the entry of oil into the tank so that it is distributed over a large area of tank, rolls down the sidewalls without stirring up sediment that might be on the tank bottom. This action is described as minimizing plugging of oil filters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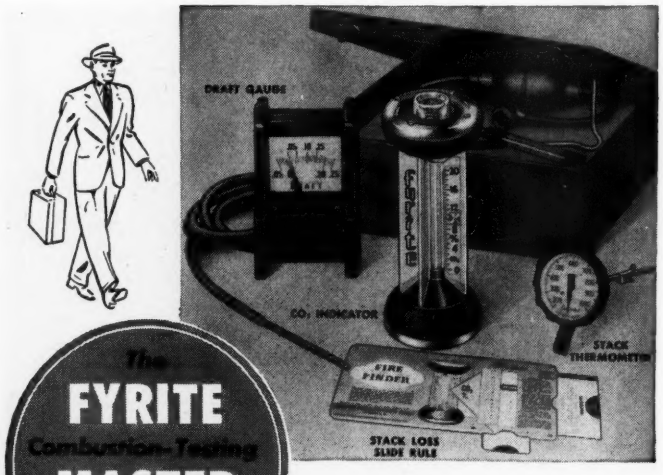
Boston Chrome Steel "HANG-DOWN" BAFFLE
APTHORP True Alignment OIL BURNER NOZZLE
BOSMACO
Instant-Glo COMBUSTION CHAMBER
The Boston Standard DRAFT CONTROL
Ideal NOZZLE EXTRACTOR
Clearview OIL TANK GAUGE
BOSMACO Apthorp NOZZLE KIT
WRITE FOR COMPLETE INFORMATION
BOSTON MACHINE WORKS COMPANY
Oil Heating Supplies Division, Manufacturers, Lynn, Mass.


DRAFT GAUGE
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The FYRITE Combustion-Testing MASTER KIT
Helps You Build Profits and Prestige
Combustion-testing builds business in two ways. First, it boosts service profits because with instruments any service job can be done in less time and by less experienced men. Second, it brings in new equipment business by spotting fuel-wasting burners through a dramatic "fuel-saving" check-up which will convince even the most skeptical customer of the need for replacement or modernization.
Keying your sales and service to fuel conservation will work wonders for you. It will establish you as a "fuel-saving" expert and help you corner an even larger share of immediate and future sales in your community.
The MASTER KIT shown above will appeal particularly to those who want professional implements of highest quality and reliability, as well as of impressive display. The cost of the kit is very small compared to the sales and service profits it will bring you.
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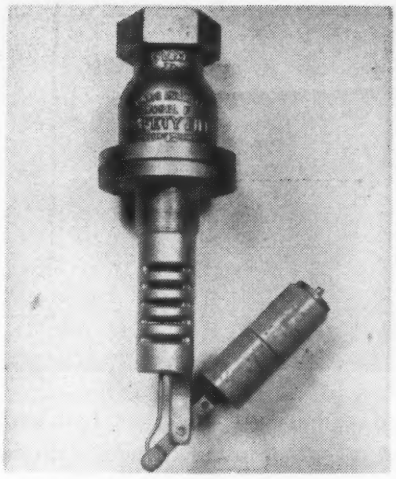

and nozzles by preventing the sediment from being suspended in the oil in the tank and possibly carried through the oil feed line to the burner.

The hose nozzle is fastened to the fill pipe by a bushing and adapter that may be permanently assembled to the nozzle. Drippage at the point of filling is prevented by the fill pipe emptying into the tank when the hose nozzle is closed.

Made by: McGillis Service Eng. Co., 1554 Main St., Brockton, Mass.

System FP-2 flame failure Safeguard with Firetron Tube

FIREYE SYSTEM FP-2 flame failure safeguard and programming control, for fully automatic commercial and industrial gas or oilburners and combination burners, consists of programming control type 26RJ8 and Firetron scanner type 48PT1. The Firetron scanner "sees" and checks the pilot flame and the establishment of the main flame, whether gas or oil or a combination of both, and replaces both flame rod and photoelectric scanner.

The programming control provides for preliminary purge of the combustion chamber, ignition-on, fuel valve delay, post-ignition timing and post-purge. Terminal connections are available for directly handling flame failure alarm and modulating motor. Response to flame failure results in complete fuel cut-off in 2 to 4 secs.

System FP-2's fail-safe circuits cause instantaneous shut-down of the burner upon failure of any component and prevents a start-up under any unsafe condition within the burner system. Components are mounted in a dust-tight steel housing, with plug-in construction provided for simplified replacement and maximum accessibility.

Made by: Combustion Control Corp., 77 Broadway, Cambridge 42, Mass.

Excel-So Tanks for meter Calibration

EXCEL-SO meter calibrating tanks are offered in a number of sizes to enable companies to calibrate their own truck or loading rack meters regularly. A 50-gallon "Squatty" model has been designed for 35 and 50 gal. truck meters and is furnished also in 84, 100 and 150 gal. capacities. Other models range from 50 to 2000 gals. and 2, 5, 10, 15, 20 and 30 barrels in stationary and portable models, with or without springs, open or closed type necks and with electric or pneumatic brakes.

The design of the "Squatty" models feature a low silhouette, permitting gravity drain-out. In the case of most

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TRANSFORMERS

important OIL BURNER FACTS ABOUT Radiant
THE SERVICEMAN'S BURNER

A nation-wide survey conducted by our advertising agency showed that

1. RADIANT burner performance is equal to the highest price burner. Yet they are priced to meet the lowest competition, even on project work.
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—low cost of upkeep
—ease of installation and servicing
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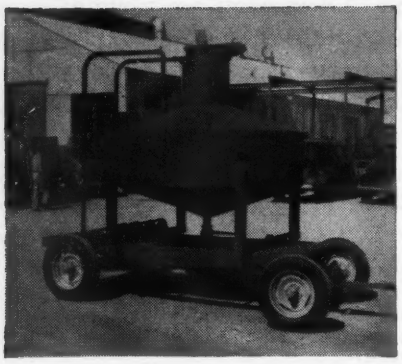
Write for complete details

New model equipped with Shell designed combustion head

RADIANT UTILITIES CORP.
8817 18th AVE., BROOKLYN 14, N. Y.



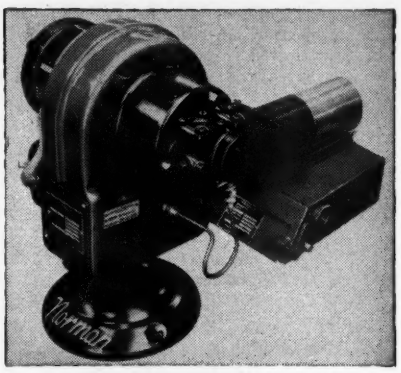
trucks the top of the prover neck is below the bottom shell line of the truck tank. All tanks are made to conform to the API tentative code #1101 and can be furnished with special modifications. Where desired, centrifugal or rotary pumps, complete with hose, valves, extension cords and tool boxes, can be supplied for pumping out tanks.

Made by: Warner Lewis Co., Box 3096, Tulsa, Oklahoma.

Norman TWINfuel Burner for commercial Application

NORMAN TWINFUEL combination gas-oilburners have been announced for commercial and industrial applications, the units incorporating a pressure type oilburner and inshot gasburner. Seven sizes, models 100 through 600, are produced, from 80,000 to 3,000,000 Btu capacity, the smaller sizes being of stainless steel construction, while temperature refractory and heavy duty cast-iron are used on the larger burners. Another model, POC-10A, uses a vaporizing oilburner and an upshot gasburner, developing 80,000 to 280,000 Btu/hr.

TWINfuel burners switch automatically from gas to oil and back, as determined by an outside thermostat set at a predetermined temperature. The burners also change fuel automatically depending upon drops or rises in the pressure of the gas line. In industrial applications the oilburner can be used for the initial start of each firing period. When proper stack temperature is reached the gas valve automatically opens and the oilburner circuit is broken as soon as gas pressure is established. The burners, which are designed to fit in front of any standard combustion chamber, are built with the gasburner installed underneath the air tube of the oilburner.



Made by: Norman Products Co., 1150 Chesapeake Ave., Columbus 12, Ohio.

Delta model CF90 Furnace for perimeter Heating

DELTA'S forced warm air furnace of counterflow design, model CF90, has an output of 90,000 Btu/hr and is for perimeter heating installations. It features a 3-piece, all-welded heat exchanger and a precast combustion chamber, measures 5'2" from top to

The RIGHT design, the RIGHT materials, the RIGHT workmanship combine to give you the oil burner with dependable performance. KORTH Burners STAY sold, prevent your profits from melting away in expensive service calls.

- A SIZE FOR EVERY JOB • CAPACITY .75 TO 20 G.P.H.
- ADAPTOR FLANGES TO FIT BOILER OR FURNACE UNITS
- GE OR OHIO MOTOR • MH CONTROLS

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UNION, NEW JERSEY

CERAMIC REFRACTORIES

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The Gem Clay Forming Company

SEBRING, OHIO

Established 1907

Telephone: SEbring 8-6141

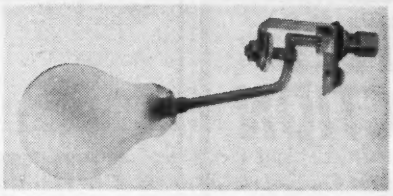
bottom, is 20" wide and 28" deep to permit installation in a utility room. Unit is factory assembled and shipped ready for installation.

A 10" x 10" blower delivers 1,000 cfm at 3/8" static pressure and the unit's air filter is located at the top of the furnace, with provision for attaching a cold air return duct at this location. Completely sealed from the airstream, a large inspection door allows visual inspection of the flame while the furnace blower is running. The furnace has a two-toned Hammerloid lustre finish.

Made by: Delta Heating Corp., 1 Cole St., Trenton 8, N. J.

Skuttle Humidifiers making extensive use of Glass

SKUTTLE has developed a new series of humidifier designs making extensive use of glass, intended to improve the units and conserve copper. The float chamber and evaporating pan are vitreous enamel steel — steel coated with glass. The float is high-strength blown glass. The improved features



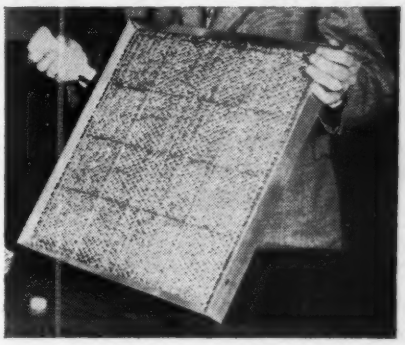
will be standard on all Skuttle automatic feed humidifiers, including Series 600, self-flushing, self-cleaning model; Series 300 for large homes and Series 500.

Prolonged tests have shown the vitreous enamel steel evaporating pan and float chamber to be unaffected by any water in the country. The glass float also has proved rugged and, like the copper float, will stand ordinary shipping and handling shocks without breakage. Tests show it to be resistant to all waters, more buoyant and interchangeable with copper floats.

Made by: Skuttle Mfg. Co., 4099 Beaufait Ave., Detroit 7, Mich.

Research Products develops Odor removing air Filter

AN AIR FILTER that removes odors as well as dirt and dust has been developed by Research Products. A liquid solution is used to impregnate the filter, which can be used with both the throw-away or permanent types. In the throw-away types the odor removing substance is effective until the filter becomes clogged and must be replaced.



To use on Research Products' aluminum permanent filter, the liquid is sprayed on the filter elements as shown in the illustration. When necessary, this type filter is flushed with water as usual and reimpregnated with the liquid before it is put back in the system.

A portable unit for use in sick rooms and offices also can be furnished with

SKINNER V2-type VALVE

★ relief
★ shut-off
★ drip-eliminator

OUTSTANDING PERFORMANCE & ECONOMY

On original oil burner equipment or for service replacement, new standards of performance are yours with the low-cost Skinner V2 Solenoid Valve! Sturdy steel parts are plated to resist corrosion — compact — weighs only 9 oz. — usable in any position! Soft synthetic seat and seals prevent leakage, and spring loading assures positive operation. There are no brazed, welded, soldered pressure joints, or threaded parts to loosen under vibration. Maximum pressure is 125 P.S.I. — rated at 10 watts max. — Underwriters' approved. Relief model is 2 way, normally open. Drip-eliminator or shut-off is 2 way, normally closed.

Write for details and low prices!

Skinner ELECTRIC VALVE DIV.
THE SKINNER CHUCK COMPANY
141 Belden Ave., Norwalk, Conn.

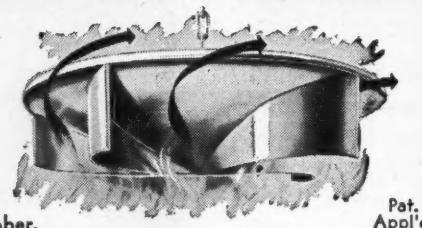
WEBCO
SLIP END BRAKES
WITH
SLIDING FOLDING FINGERS AND BOX ATTACHMENTS
IN TWO SIZES—30 INCH AND 48 INCH
MORE BENDS, IN LESS TIME, FOR LESS MONEY

WEBB MACHINE & TOOL CO.
Imperial, Pennsylvania

DON'T JUST BAFFLE! GET SWIRLING ACTION TOO-

Every Conversion needs a FIRE-SWIRL BAFFLE.

Get the facts, clip this to your letterhead, or see your jobber.



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FIRE-SWIRL ZEH COMPANY INC., PASSAIC, N.J.

Glider

FOR COMPLETE COMBUSTION

Petroleum chemical used in fuel oil tanks to cleanse and keep tanks clean, also to operate oil burner with clean fire and eliminate service calls.

U. S. PETROLEUM CO.

94 Lakeview Avenue Clifton, N. J.

. . . . New Products

the deodoring filters. Other practical uses include odor removal from nurseries, bathrooms or inside rooms where cross ventilation is not possible. The company points out also that the new filter is effective in trapping smoke.

Made by: Research Products Corp., Madison, Wis.

Indusco flexible Coupling for Motors up to ¼ hp

INDUSCO flexible couplings have been announced for fractional horsepower operation, designed for use on oilburners, fans, pumps and similar applications. Intended for connection to fractional horsepower motors up to ¼ hp, Indusco couplings under normal conditions will transmit ¼ hp at 1750 rpm with a steady load.

Design features include adaptation for either or both linear and angular misalignments of not more than 5° or linear error of ⅛", giving vibration-free operation. Construction is described as preventing excess wear on shafts and bearings and operation without lubrication. Also, it minimizes wear caused by push and pull encountered when using a more rigid connection. Constructed of laboratory-tested materials and fabricated to precision finishes.

Made by: Industrial Development Corp., 2000 Patterson Park Ave., Baltimore 13, Md.

Fuel Econ-O-Miser is baffled chimney Valve

AN AUTOMATIC FURNACE exhaust valve, the Fuel Econ-O-Miser, has been

The "YANKEE"

Most Beautiful Truck Tank in Years

CUSTOM BUILT • COMPLETELY EQUIPPED
METER, PUMP, HOSE, ETC.

3 to 4 Weeks Delivery

CUSTOM MADE TANKS
GASOLINE OR FUEL OIL
ANY CAPACITY—ANY STYLE

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PLEASE NOTE WE ARE NOW AT OUR NEW AND LARGER FACTORY

Positive DRAFT CONTROL

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Keeping flues dry—clean—safe
Saves up to MUCH fuel, all kinds

Profitable dealer offer

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Abington, Mass.

Dealers! Jobbers! Insist on Shell Designed Combustion Heads on all the burners you sell!

(Available to Oil Burner Manufacturers only)

The Shell Designed Head's proven fuel-saving feature gives you a powerful selling advantage over competition with ordinary equipment. Sell the best!

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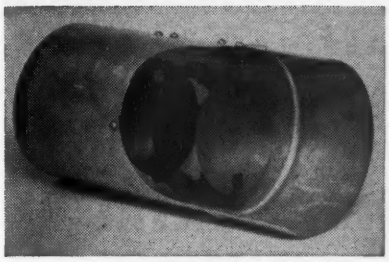
166 Pleasant St. Boston 25, Mass.



introduced for installation on new or old units. It is made up of self-adjusting baffle plates, designed to reduce the size of the chimney opening to restrict the flow of hot flue gases. It operates normally in a closed position, with the baffle plates slowing down the gases to a slow velocity.

Excessive pressure is compensated for by the freely-swinging plates, which open momentarily when excess pressure builds up and then close. The design is described as contributing to heat loss reductions when burners are operating and shut down, with the baffle plates virtually eliminating back draft complaints.

Made by: The Fuel Econ-O-Miser Co., 1 Washington Ave., Providence 5, R. I.

Low Pressure Commercial

(Begins on page 114)

The combustion efficiency takes into consideration only the matter of burning the oil completely without smoke and with a minimum amount of excess air. The writer has recently made a survey of many commercial and industrial installations and has found that where there is freedom from smoke in most cases there is a great deal too much excess air. Five and six per cent CO_2 is very common in small industrial plants. It seems that the only way that a burner can be set efficiently and continue indefinitely to operate efficiently is to furnish all the air for combustion through the burner, so that both the oil and the air are accurately metered. A description of an industrial air atomizing oilburner, shown below, will explain how this is accomplished.

Over-All Efficiency

The over-all efficiency of the boiler and burner or of the furnace and burner depends on the following: combustion efficiency; the amount of heating surface; the ability of the gases to wipe all the heating surface; proper draft conditions; and an easy means for controlling the size of the fire so that stack temperatures are not excessive but high enough to prevent condensation in the stack or breeching.

On warm air furnaces it is advantageous to modulte the fire between high and low, so that in periods when no heat is required, a small quantity of warm air can be continually circulated in order to prevent stratification of air in the building and to keep the fire box warm. On many process steam jobs the recovery rate of the boiler is not fast enough to maintain accurate enough temperatures, if the burner operates on an "On-Off" cycle. In order to maintain accurate temperatures it is necessary to modulate between a high and low fire. A burner that incorporates a modulation feature is of great advantage.

There is probably no complaint as annoying as the necessity for the operator to push the reset button occa-

Protect Your

VIKING PUMPS

Father Time is kind to Viking Pumps because they're built sturdy and simple, having only two moving parts. However, you'll enjoy even longer and more dependable pumping service from your Vikings when you give them *extra* care.

For information and instructions on correct installation, operation and maintenance of your Viking Pumps, write today for your *free* copy of the Viking Service Manual EE.

Viking Pump Company
Cedar Falls, Iowa

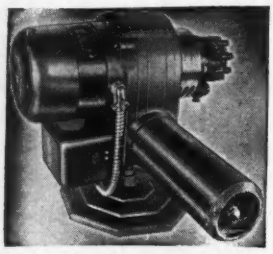
Buckeye Oil Burner Accessories are built to do a good job—to keep doing a good job year after year without maintenance. Buckeye's Double-Opening "T" Vent, shown here, is no exception. Its body is of sturdy cast iron and both openings have the double protection of a brass fire screen plus a heavy galvanized wire cloth. And like other Buckeye fittings, it can be installed and *forgotten*. Get better installations—specify BUCKEYE.

Buckeye

BUCKEYE IRON & BRASS WORKS, Dept. F, Box 883, Dayton 1, Ohio

Strainers • Sludge Pumps • Foot Valves • Fill Boxes
Check Valves • Vents • Shut-Off Valves • Bushings

SINCE 1927
STANDARD AUTOMATIC OIL BURNERS
Now Equipped with ECONOMY HUB



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PERFORMANCE
to make a
REPUTATION

Write for Territory open in your Locality

Models from ¾ gal. to 20 gal. per hr.

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YOUR FREE 1951-1952
OIL BURNER SUPPLIES
and
SERVICE PARTS CATALOG
IS NOW READY!
• Complete • Fully Illustrated
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SIMS CORPORATION
55 Sims Avenue Providence 9, R. I.

sionally because the burner does not ignite. This is particularly annoying when a burner is off over a weekend and is expected to ignite automatically Monday morning. The people arrive at the plant and find it cold because the burner did not ignite, and it is necessary to push the reset button. When No. 5 oil is used, it has been found advantageous to have a heater inside the burner, close to the nozzle, so that warm oil for ignition is immediately available.

Cost of Gas for Ignition

It has long been recognized that there is a much broader market for and a great saving with a burner that does not require gas ignition. Originally many of the domestic burners used gas for ignition. The start of the great popularity in domestic burners can be dated to the time when gas was no longer required for ignition. Gas ignition represents a continuing item of expense and the installation cost is considerable. In many localities during severe cold weather, gas supply and pressure is very low and gas pilot failures are common. In some areas where gas is not available it is necessary to install bottled gas where this fuel is required for ignition. Thus air atomizing burners that require only electric ignition have a distinct advantage.

It is widely recognized that there is a distinct advantage in purchasing a piece of equipment from a responsible manufacturer. Guarantees are necessarily iron-clad, but the responsible manufacturer usually does not stop with his guarantee. In spite of the great strides that have been made in the oilburner industry there is a great deal that can be done to improve oilburners. The manufacturer with large facilities for experimental work and research is bound to be far ahead of the manufacturer who does a little experimenting with one of his servicemen. In the selection of a burner consideration should be given to the manufacturer who is continually developing and improving his product.

No matter how extensive or complete the inspection of the various components going into the manufacture of a burner, the perfection of operation cannot be determined until a burner is operated under fire. For many years the Cleaver-Brooks Company has found it desirable to fire every burner and boiler in the factory before it is shipped. While this type of test is, of course, expensive, one can be sure after a fire operation that the burner is ready for installation.

Completeness of the Burner

The cost of wiring controls and piping auxiliary equipment, is much higher in the field than when this work is done at the factory. It is recommended that burners be furnished as complete as possible as a unit from the factory. This will insure lower over-all cost and proper operation in the completed job.

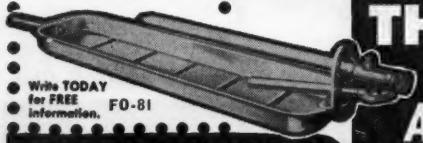
Air Atomizing Type Burner

Illustration 4 shows the various components of the Hev-E-Oil Burner. It includes a variable-delivery, plunger type metering fuel oil pump to furnish a metered supply of fueloil, shown

Instant Steam
FROM A SIZZLING HOT PAN...THE MOST EFFICIENT, MOST DEPENDABLE WAY TO PUT MOISTURE IN THE AIR

With the AUTOMATIC HUMIDIFIER water drips into pan only after pan is hot. Each drop sizzles into steam as it strikes heated pan surface. Puts the most moisture into air stream when it is MOST NEEDED.

- NO STAGNANT POOL TO REHEAT
- SUPER-SENSITIVE THERMOSTAT
- OUTSIDE SCREW ADJUSTER
- EASY INSTALLATION
- ONE KIT TO PURCHASE



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Manufacturers of thermally sensitive resistors

How to Remove SLUDGE, DIRT and WATER from FUEL OILS

A factual bulletin No. 1186-F shows how you can profit by the correct use of a Dehydrator. Let us have your fuel oil cleaning problem. Write to Erie Meter Systems, Inc., Erie, Pa.

ERIE

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MAIN OFFICE AND PLANT, ERIE, PA., U. S. A.

Be first in your market to offer absolutely clean and crystal clear fuel oil. Remove the solids and all free water from your fuel oil to protect your customers' oil burners. Add this service to make your product better. The Erie Dehydrator developed at first for aviation fuels is now applied in scores of ways to remove sludge, dirt and water from petroleum liquids.

as (1); a sliding vane type primary air pump (2), delivering the primary air which atomizes the oil. The air pump creates air pressure from 12 psi to 25 psi and breaks up or atomizes the heavy oil within the nozzle. A secondary air fan directly connected to the motor furnishes all the secondary air for combustion. The lower part of the burner housing serves as an oil reservoir (3). Sight glass (4) shows immediately the amount of lubricating oil in the reservoir. The air pressure supplied by the primary air pump lubricates the air pump by means of an automatic pressure lubricating system. The air forces the oil through a tube into the air pump. The oil vapor discharged from the pump is separated from the air by a bronze wool strainer and a baffle, and the oil drops back into the reservoir.

The oil and air flow is shown in a schematic diagram.

The drawer assembly comprises the electrodes, electric oil preheater, nozzle body, and nozzle tip. The oil preheater is a Nichrome wire-wound unit so designed that the fueloil is evenly heated throughout the entire length of the tube. In actual operation the starting of the burner is delayed until the oil in the oil preheater is heated. This insures hot oil for instant ignition.

The solenoid valve, which opens the oil supply and shuts it off when the burner stops, is controlled by a pressuretrol which is operated by the primary air. In this way no oil can go into the burner until there is sufficient atomizing air present. The nozzle (47) is of the air-atomizing type in which the fueloil is first mixed with air under pressure, then sprayed into the secondary air stream blown through the draft tube. The nozzle consists of two parts, the inside non-rotating swirler and the tip, which has a very large orifice. The size of the orifice determines the shape of the flame, so that various shaped flames can be used for different shaped fire boxes.

The air modulating motor (10) is an air-operated power cylinder which utilizes the power of the compressed primary air. The purpose of this air operated motor is to increase the size of the burner flame just after the burner has started operation, so that the burner always starts with a low fire and then gradually builds up to high fire. By releasing the air from this cylinder by means of an automatic control, it is possible to modulate the fire from high to low flame against the heat demand. Stops (5 and 6) may easily be set to determine the stroke of the air operated cylinder so that both high and low fire can easily be set. The inlet damper to the blower can be set at the correct position for both high and low fire. As the oil pump

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a PROVED fuel saver
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Excellent Territories Available in Our Expanding Dealer Organization — Write Today for Full Information.

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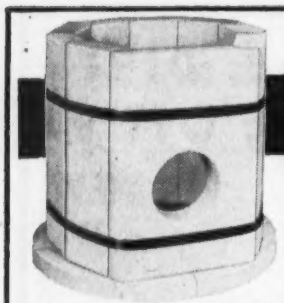

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American Chambers are made from the finest, high grade refractory materials combined with proper "Kiln-curing". They will withstand 2500 degree temperatures and will not crumble in water.

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AMERICAN CLAY FORMING CO.

TIFFIN, OHIO

setting is changed, the secondary air also changes, to give the correct air-oil ratio and maximum CO_2.

The air atomizing industrial burner is of particular value in the field of commercial and industrial oilburning, where burners of more than 3 gallons per hour and less than 30 gallons per hour are used for completely automatic operation. They are particularly advantageous where an oil as heavy as No. 5 oil, with a viscosity not greater than 350 SSU at 100° F. and a pour point not greater than 10° F. is used. Lighter oils can be burned equally as well in such a burner.

A burner of this type, furnishing all the air for combustion, incorporating low fire start, modulation, and all-electric ignition, gives the maximum in efficiency and reliability.

Other factors that should be taken into consideration are the experience, facilities, and responsibilities of the manufacturer of the burner, the completeness of the burner as shipped, and the thoroughness of inspection of the final product.

Oilfiring Rope Works

(*Begins on page* 106)

estimated oil consumption would have been 234,000/4552 or 51.4 gallons of oil per Degree Day.

By definition of a Degree Day, there are 65 Degree Days in any 24 hours with an average temperature of Zero Deg. F. Thus 65/24 gives 2.71 Deg. Days per hour. Multiply 51.4 gallons of fueloil per Deg. Day by 2.71 gives 139.5 gallons per hour, maximum.

As the burning of rope wastes almost carries the summer or Process Load, and as the age of boilers was against forcing them beyond ratings, it was decided to use burners rated at 45 gallons per hour each, or a total for three of them of 135 gallons per hour. It is seldom that a zero day is encountered in this part of the country, and it is also a fact that many parts of the plant are not heated above 60 degrees in cold weather. There has been no difficulty in carrying the heating load during the last season.

A study was also made of the eventual need for new boilers. It was decided to use the old boilers as long as possible, due to the high return on the investment in new burners. Preferred Burners promise to pay off the investment on fueloil tank, piping and burners in 2 or 3 years. Burners may be used on new boilers later.

Reliability of service is a vital factor in such a large plant. Electric power failure can be serious, and it was suggested that a standby electric generator with gasoline or Diesel Engine be provided to carry oilburners, fire pumps, etc. over such periods. This will be especially important when all three boilers are equipped with oilburners. Such a standby electric power plant may be arranged to start automatically if any serious drop in voltage on the main power lines should occur.

Among the considerations which led to the installation of oilburners, the following summary is of interest:

1. A saving in labor and dirt of han-

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. . . the materials, the skill and the equipment necessary to manufacture LEGGITT quality fittings — are vital to American defense. Today our efforts are devoted to regular customer requirements which we expect to continue to supply. Although we will be unable to take on very much new business on our regular line, we are in a position to supply those holding defense contracts. Write, wire or phone

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SOOT-GO SOOT DESTROYER

STILL THE BEST for cleaning oil and gas-fired heating plants.

EFFICIENT AND ECONOMICAL TO USE

ALSO:

SLUDGE-GO for Cleaning Fuel Oil Tanks and Will Emulsify Water.

EZ-E WELD for Sealing Leaky Boilers. No After Odor. No Draining.

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CHOOSE YOUR SHAPE for Any Style Furnace or Burner

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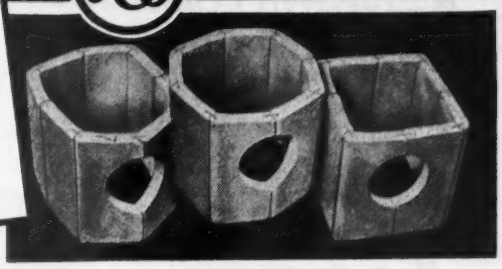
R&I **COMBUSTION CHAMBER**



- *Easy to Handle and Install*
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dling coal and ashes was a major item on the orders of $9,000 per year.

2. Automatic control of steam pressure with less loss due to blowing of safety valves; and the possibility of operating at lower pressures if steady pressures are maintained.
3. Lower cost of fueloil as compared with coal due to improved efficiency with oilburners under automatic firing.
4. Less labor for firing and cleaning boilers with oil.
5. Eventual elimination of coal piles and automatic firing of rope wastes with oil in a special furnace.
6. Improvement in general cleanliness of boiler room and plant.
7. Postponement of purchase of new boilers until savings due to oilburners may help pay for them.
8. Delivery of fueloil is by motor truck transport rather than by rail. Oil is handled entirely by pumps, and storage tank is underground. Although this storage tank is relatively far from the boilers, it is still nearer than the coal supply and point of delivery.
9. Measurement of fueloil is easier and more accurate than that with coal, for accounting purposes.

All of these items adds up to powerful incentives to change from coal to oil fuel for operation of a plant as large and important as Wall Rope Works.

FUELGUARD **REMOTE READING TANK GAUGES**

SAVE TIME!
SAVE MONEY!
SAVE TROUBLE!

Install in the suction line of the pump—no pipes or wires needed—five minutes is all it takes!

The simple FUELGUARD principle cuts first cost in half, installation almost to nothing.

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Highest Quality joined with Accuracy and Workmanship— Responsibility gives you great Satisfaction and fullest Confidence toward our **HARSCH** *Nozzles!*

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Satisfy dealers . . . Satisfy customers

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Write today for literature and specifications to cover your particular requirements.

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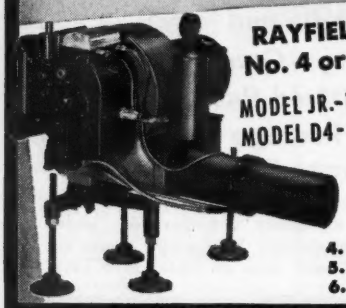

RAYFIELD BURNERS FOR No. 4 or No. 5 HEAVY OILS
MODEL JR.-1.00 to 5.00 GALS./HR.
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1. Fully Automatic
2. Self Cleaning Nozzle
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1. Amazing Economy 12 to 15% CO_2
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4. Quiet—No Vibration or pulsation
5. Cuts user's oil bills 14 to 36%
6. The ideal replacement oil burner

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Oilheating Trends

(*Starts on page* 12)

FUELOIL SUPPLY: Among the fuel-oil distributors reporting this month 41% have been given some kind of restriction on their gallonage for the next heating season. The greater weight of this situation is felt in Eastern states, since the Midwest and Far Western distributors are running into very little restriction. In New England nearly half of the companies are restricted and in Mid-Atlantic a little more than half have been given some kind of a limitation.

Asked what was the nature of their restriction, exactly half of the restricted companies had been told they could have the same amount of oil they bought last season. Then about 40% of those restricted companies were given specified percentages above last season ranging from 5% to 15% and averaging just under 10%.

The small remainder or about 10% of the restricted companies were given monthly quotas that they must accept if they are to get all of the oil they need in the full year.

This whole situation is hard to understand unless we say that the supplying companies are being extra cautious in view of uncertain world conditions. Certainly there is nothing in the supply picture at this stage that points to a fueloil shortage next winter. Not only are stocks building up in fine shape but the high refinery runs are producing considerably more home heating oil than anyone had expected a few months ago. During the late summer and early fall months there is even a good possibility of a substantial surplus condition in heating oil stocks, more stocks than storage.

Fortunately in view of the true supply outlook most of the marketers are going ahead selling oilburners and increasing their requirements. Only 10% of the reporting companies say they have stopped selling oilburners although it is possible that some of the others are doing less merchandising and promotion of sales.

Primary stocks of distillate fuels at terminals, refineries, and in transit on July 7 East of the Rockies were 59,773,000 barrels. This compares with 43,236,000 barrels on the corresponding date last year, for a rise of 38%. Last year these stocks did not reach the present figure until the third week in September.

MANPOWER: Oilheating dealers throughout the country have lost to the Armed Forces since a year ago approximately 2,024 men. They have also lost about 1,744 to defense industries, or a total of 3,768 men lost as a result of the war and defense programs. They have replaced 3,021 of the total, leaving a shortage of 747 men. This would not be a significant number if it were not for the fact that the industry was pinched for manpower a year ago and it now has around 12% more burners to care for than it did when Korea started. It looks like busy days ahead with considerable overtime in prospect.

Some dealers have been able to get men deferred, but there were only about 125 deferments in the country. These ranged from 3 to 12 months in length and averaged 7 months. Few as

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THE BRADFORD PRICE BOOK
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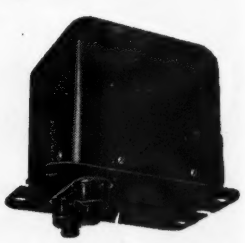
Unfailing Ignition for Oil Burners

Ignition is at its best when an oil burner is equipped with a Dongan Transformer — the transformer with many unusual construction features. Insulated under high vacuum. Protected against injury from electrical surges. Laminations heat-treated to remove internal stresses.



Voltages from 5,000 to 20,000. A variety of sizes and mountings.

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Eliminate your service loss on oil accounts. Kleenmaster grosses $7.00 per customer after selling expense and labor.

Keep your Drivers and Servicemen busy during the summer slack.

The "Big Bag" with your name in large type gives you "Billboard and Soundtruck" advertising.

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they are, this record does show that they are possible under some circumstances even though oilburner work is not a critical occupation in the eyes of the Government.

DEALER COMMENTS: Typical comments on questions of the month are these . . . "Sales very slow, but expecting a pick-up in August" . . . "We make few sales to new homes since contractors mostly try to buy from manufacturers; who will service these jobs and at what cost?" . . . "In competing with gas we should not ignore advertising the fact that the utilities will never let a bill run two or three months, while the oil man often goes along with the customer and keeps his house warm even when he can't pay his bill on time; it is no fun doing business with a monopoly" . . . "All I need is a couple of good men" . . . "A cold winter can definitely bring oil supply trouble" . . . "We have had several gas explosions in South Jersey and we really let our prospects know about them" . . . "No steel" . . . "We are slow on installations, busy on repairs" . . . "Business looks much better for the last half" . . . "At least one major supplier who restricts his fuel sales to jobbers to 10% above last year is still selling oilburners direct. What is the gimmick?" . . . "Every unit installed in new homes should be able to fire gas, oil or coal; we have good prospects for replacing gas burners but the unit will not burn oil and the cost of replacing it is high" . . . "The gas company in our city has stopped making installations because of limited supply."

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For fueloil soot only. E-Z does a thorough, safe job with just one application. With a can of E-Z on the service truck, many cleaning jobs can be done at a very good profit. If your distributor cannot supply you, order direct.

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Liberal Discount to bona fide Servicemen.

Special discount to distributors on quantity purchases, allows for extending regular discount to dealers and servicemen.

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Throughout the Nation

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OIL BURNER

- **FOR EVERY OIL-FIRED FURNACE**
- **ALL SURFACES MACHINED • VARIABLE TUBE LENGTHS**
- **COMPLETELY FIRE TESTED • PRECISION MADE THROUGHOUT**
- **MEETS LOCAL AND STATE REQUIREMENTS**
- **WRITE TODAY FOR FULL INFORMATION ON OUR COMPLETE LINE**

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Stock it now—Collect the Profits

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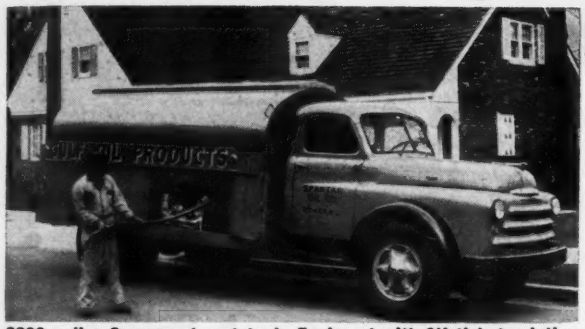
Sold by
GENERAL FILTERS INC.

Greatest Complete Fuel Oil Truck Value Ever Offered! $4,280.00



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300 Block on LINCOLN AVENUE HAWTHORNE, N. J.

R. S. Walsh has been appointed manager, Induction Motor Sales Div., General Electric's Small and Medium Motor Divisions, Schenectady, N. Y. He completed the G-E test course for student engineers in 1932, joined General Appliance Co. in 1933 and returned to G-E at Schenectady in 1934 in the Induction Motor Div. In 1941 he transferred to Detroit as a motor specialist and to Chicago in 1946 as district motor specialist. Mr. Walsh was appointed assistant manager, Induction Motor Sales Div. in 1948.

E. D. Russell, former sales representative in Wisconsin and Minnesota, has been named assistant Lorain Div. sales manager, American Stove Co., St. Louis, Mo. Announced at the same time was the appointment of *A. W. Gruer* as manager, market research department. Mr. Russell, with the company since 1937, will supervise the sale of Magic Chef oil stoves.

W. M. Day has become chief engineer, Perfection Stove Co., Cleveland 4, Ohio. He came to Perfection in 1945, following 5 years of military service, and has been assistant chief engineer since January, 1947.

Marshall N. Terry has rejoined The Trailmobile Co., Cincinnati 9, Ohio, as director of advertising. He was with the company through the last war and since then has been with the Crosley Broadcasting Corp. His activities will be directed at coordinating the company's advertising program with the promotion of products through its sales organization.

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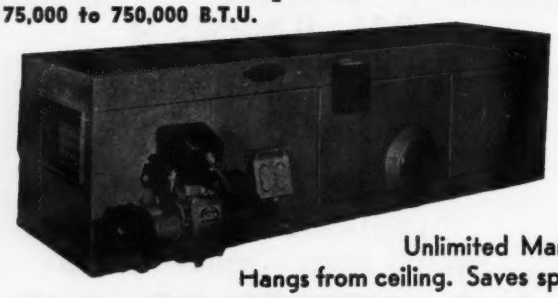
75,000 to 750,000 B.T.U.



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Our literature will assist you in your work.
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Micronic Filtration Without Expensive Alteration to Your Tank Truck!

Look at the advantages in customer sales appeal along with savings in maintenance costs:

- **Increases customer satisfaction.**
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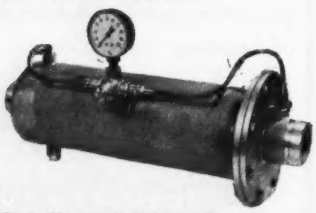

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